Prepared by:

McKinsey & Company, Inc.

A Product of the CMS Alliance to Modernize Healthcare
Federally Funded Research and Development Center
Centers for Medicare & Medicaid Services (CMS)

Prepared For:
U.S. Department of Veterans Affairs

At the Request of:
Veterans Access, Choice, and Accountability Act of 2014
Section 201: Independent Assessment of the Health Care Delivery Systems and Management Processes of the Department of Veterans Affairs

Assessment E (Workflow – Scheduling)

September 1, 2015

Prepared for CAMH under:
Prime Contract No. HHS-M500-2012-00008I
Prime Task Order No. VA118A14F0373

This document was prepared for authorized distribution only. It has not been approved for public release.

This page intentionally left blank.

Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an independent assessment of 12 facets of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH coordinated the assessments and is furnishing a complete set of reports of individual assessment findings and recommendations to the VA Secretary, the House and Senate Veterans Affairs Committees, and the Commission on Care. This report describes the results of assessing workflow processes for scheduling appointments for Veterans at VA medical facilities.

The research addressed in this report was conducted by McKinsey & Company, Inc., and Atlas Research under a subcontract with The MITRE Corporation.

---

[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

This page intentionally left blank.

Executive Summary

Health systems across the U.S. have struggled with ensuring optimal patient access to the services they provide, and Veterans Health Administration (VHA) is no exception. Although VHA has faced public concerns about access to outpatient care for several decades, many factors that influence access have been only partially analyzed to date at VHA and were called out in the Choice Act as areas for independent assessment. The Choice Act tasked Assessment E with assessing the “workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive care, medical services, or other health care from the Department.” The assessment was also asked to address several supplemental areas related to provider scheduling templates, scheduler training, the use of call centers and the appointment scheduling system. All of these factors – as well as others explored in Choice Act assessments such as overall health care capabilities (Assessment B) and clinical staffing (Assessment G) – are critical to ensuring that our Veterans receive improved access to care.

In this assessment, we have reviewed VHA performance in the scheduling workflow areas against best practices from both within VHA and across the private sector. The major finding of this assessment is that VHA is not fully leveraging provider resources, scheduling best practices, or scale to deliver the best possible scheduling experience and access for Veterans. These shortcomings have a negative impact on both patient access to outpatient appointments (in terms of total number of appointments available and the matching of patients to those available appointments) and the patient experience of scheduling an appointment with VHA. It is likely that, with improved data visibility, more streamlined processes and performance management, VHA could expand the supply of appointments even with its existing provider base, as well as improve overall utilization of appointment supply and patient experience.

More specifically, we observed the following challenges that reduce the overall effectiveness of VHA scheduling today:

- **System limitations prevent accurate visibility into the supply of available appointments, inhibiting VHA’s ability to understand the gap between total appointment supply and demand and to effectively manage current performance and plan for the future**. Due to system design limitations, some providers operate across multiple, potentially overlapping, booking templates or “clinic profiles” for any given day or session. As a result, these profiles, when aggregated, provide an inaccurate picture of total available appointment supply and make it challenging to easily understand whether appointment supply matches the quantity VHA should expect given the number of providers. The issue of overlapping profiles not only affects centralized calculations of overall and provider-level appointment supply, but also makes it challenging to calculate provider utilization rate, which is an essential metric for managing access to care. These limitations mean VHA cannot determine how much patient demand its current provider capacity can meet in a timely manner.
- **Imbalance between supply and demand has led to policies that add responsibilities for schedulers and administrators.** Because VHA has a persistent backlog of patient demand, VHA created additional policies that do not exist in the private sector, such as the capture

of patient desired date and the use of the Electronic Wait List (EWL). These policies for measuring wait times and managing waitlists have resulted in a significant number of additional activities required within the scheduler's day-to-day workflow. Further, the implementation of these policies is left largely to frontline interpretation, which may also result in inconsistent experience for patients across clinics or facilities. For example, use of the EWL varies across clinics; some clinics use it solely to measure backlog while others use it to highlight patients who may be willing to take an appointment that becomes available at the last minute (Choice Act site visits, interviews 2015). Veterans may then experience variation in when they are removed from the waitlist depending on how their clinic has implemented EWL.

- **Clinics do not consistently employ standard industry practices related to schedule setup and other scheduling processes.** VHA clinics are inconsistent in their use of industry and VHA best practices in scheduling, resulting in a fewer appointment slots available than may be possible within existing provider capacity and a significant number of booked appointments not being completed as originally scheduled. On schedule setup, examples of these practices in common use in industry and within certain services (such as Primary Care) within VHA include using standard appointment lengths within a sub-specialty and determining appointment mix (for example, number of new patient slots) based on patient demand (Institute for Healthcare Improvement (IHI), "Reduce Scheduling Complexity," n.d.; Primary Care Clinic Profile Standardization Guide, 2014). Similarly, inconsistent scheduling practices, such as the ways in which appointment reminders are used, exist across facilities and clinics. For example, a patient could expect a reminder from a clinic and not receive it (and potentially not go to the appointment as a result). Ultimately, the variability in these practices may result in reduced appointment availability and utilization as well as inconsistent patient experience.
- **Facility-level differences in performance management and accountability limit system-wide improvements in access.** VHA facilities lack consistent organizational structures for managing scheduling or access and, in many cases, lack dedicated resources to manage performance and outcomes for these activities. Given structural differences, formal monitoring of schedules is not a clearly defined duty for any staff members at the facility level, which hinders cross-system sharing of best practices, policy dissemination, and process standardization. In addition, this lack of consistency in organizational structure and accountabilities limits VHA performance management of facilities, as no one individual is specifically accountable and data analysis is cumbersome.[2] The Veterans Choice Act (section 303) identified this lack of accountability and aims to assign management of access responsibilities to a particular role within each clinic and to provide tools and processes to help perform this duty ("Veterans Access, Choice, and Accountability Act of 2014," 2014). VHA plans to fulfill this mandate without any new facility hires; instead, the organization will designate current FTEs as owners of these

---

[2] For example, at present, there is no easy or automated way to consistently and accurately monitor provider schedules.

responsibilities at the clinic and facility levels (Access and Clinic Administration Program [ACAP], interviews, 2015).

- **VHA-specific processes paired with a scheduling system that does not simplify processes leads to a greater reported need for scheduler training**. In response to a survey, 90 percent of schedulers noted the need for additional training in at least one area (for example, wait times and wait list policies) to become proficient at executing their basic responsibilities (Assessment E VHA Employee Survey, 2015). This perceived need for enhanced training may be due to systems and processes that do not simplify scheduler responsibilities, a common focus among private sector health system executives we interviewed. For instance, scheduling systems of private sector health systems have more user-friendly interfaces, fewer unique programs, and more automated processes (Private sector health system, interviews, 2015). As a result of greater complexity, VHA schedulers must receive additional training (on wait times and wait list policies, for example) to become proficient at executing basic VHA scheduler responsibilities.
- **Scheduling call centers are not maximizing their performance due to their small scale and disparate service offerings.** VHA call centers are smaller than industry standard (median size of 12 agents within VHA compared to 28 agents in private sector health systems and 110 agents across other industries) (Assessment E national data call, 2015; Belfiore et al., 2015). The scheduling call centers that do exist provide different services and support different specialties depending on the facility. Due to efficiencies in managing call demand that can lead to service improvement for patients, other provider systems have, in some cases, moved to pooling call volumes in more central locations. Larger scale call centers can also have lower per-unit costs and put less stress on space-constrained facilities than facility- or clinic-based operations. Further, larger call centers may be able to offer more coaching, training and career options to schedulers.

VHA has received significant feedback on ways to improve its scheduling and access performance. In fact, since 1999, more than 35 reports by the Government Accountability Office, VA itself, VA Office of the Inspector General (OIG), and independent contractors have commented on possible approaches for VHA to improve scheduling and access. Despite the number of reviews, there has been little articulation of the fundamental need for VHA to solve its ability to manage provider appointment slot supply until the Institute of Medicine’s February 2015 “Innovation and Best Practices in Health Care Scheduling” white paper, which recommended that VHA get “back to the basics” to understand provider supply vis-a-vis patient demand and ultimately design schedules that optimize the two. With the access crisis and subsequent Choice Act in 2014, VA/VHA have accelerated several efforts to address issues raised in past reports, including funding provider hiring and non-VA care, initiating the procurement of a commercial off-the-shelf (COTS) scheduling system referred to as the Medical Appointment Scheduling System (MASS), and designing a clinic manager training program to better manage the scheduling process. However, to drive overall improvement to scheduling and address the specific challenges described above, we recommend that VA and VHA successfully complete in-flight initiatives and consider additional actions, which would be most effective if executed in an integrated manner. These actions include the following:

- **Address system limitations to provide visibility into aggregate appointment supply, alternative measures of wait times, and provider-level performance data.** VHA providers can operate across multiple and sometimes overlapping clinic schedules (also known as "profiles"),[3] which can result in double-counting of appointment slots when aggregated. VHA has a current initiative to clean-up overlapping schedules and unused clinic profiles that should result in a more accurate view of each clinic's appointment slot supply. Although this is an important first step, the effort may not eliminate all overlap in schedules and will not by itself allow understanding of appointment supply and utilization. One consolidated schedule for each provider would allow VHA to capture total appointment supply and measure the industry-standard wait time metric. With VA OI&T's current procurement of a new scheduling system (discussed in detail in section 7, Scheduling System), VHA may be on the path to addressing system limitations. Of course, when updating or acquiring a system to support scheduling, it is important to understand the business case relative to modifying the existing system or locally sourcing solutions at the facility/regional level.
- **Codify proven scheduling practices and empower clinics to improve appointment utilization and deliver a consistent patient experience.** Several pockets of scheduling best practice exist within VHA, such as the predictive missed opportunity model. However, many of the best practice VHA tools and processes are not widely disseminated nor utilized. The VHA ACAP Office reported that it is beginning to codify system-wide knowledge of scheduling best practices, but there is also an opportunity to ensure that these practices are consistently utilized in the field (ACAP, interviews, 2015). This will require addressing the lack of clinic management resourcing, addressing scheduler vacancies and ensuring that providers have an understanding of why certain practices (for example, overbooking) may be necessary to provide access.
- **Streamline scheduling policy implementation with supporting tools and implementation guidance; where possible, utilize technology to support.** The current Scheduling Directive policy is designed to aid VHA facilities in managing in an environment of excess demand relative to the appointment supply it is offering. This has resulted in policy steps, such as wait time capture and wait list management being added to the scheduling process, which can result in inconsistent patient experience due to discrepancies in policy interpretation and implementation in the field. For instance, to adhere to the policy regarding the Electronic Wait List, the scheduler will place a patient scheduled outside of 90 days on a wait list, an additional step in the scheduling process (Choice Act site visits, interviews, 2015). Further, while the EWL prioritizes Veterans to be scheduled based on policy, schedulers can find it challenging to use the list in conjunction with other policies (e.g., how many times the patient should be called before moving to the next patient on the list). In contrast, an ideal system would automatically place relevant patients on the EWL, provide a manager with a comprehensive dashboard for monitoring the waitlist demand, and prioritize which patients should get the first available appointments based on

---

[3] Described in Provider Availability Section 5 of this report

additional parameters. As a result, these changes would improve schedulers' efficiency and improve consistency of policy implementation.

- **Improve scheduler training by sharing local best practices and increasing experiential and on-the-job training, while also minimizing the need for training by simplifying policy implementation and improving system functionality.** Currently VHA's need for scheduler training is exacerbated by its scheduling software, policies (like EWL), and clinic- and provider-specific scheduling rules. Improvements to the scheduling systems, streamlining policy implementation, and minimizing unnecessary clinic-specific rules would reduce demands for schedulers' training and create more consistent patient scheduling experience. To optimize its training program, VHA should also leverage local best practices to create an improved and standardized curriculum for training and minimize duplication of materials development at the facility-level. In addition, training should be delivered using more experiential training methods to increase its effectiveness and information retention by schedulers.
- **Design scheduling call centers that can provide expanded services for Veterans relative to current state.** Currently, VHA scheduling call centers are managed locally at the facility level. As a result, most are small (median size of 12 schedulers, based on facilities that responded to our data call) and each call center varies in regards to the responsibilities and specialties for which it is responsible (Assessment E national data call, 2015). Decentralized call centers are difficult to centrally monitor and manage with regards to patient experience. Through the new MyVA effort, the organization is examining how it interacts with Veterans across various channels (such as, web, call centers, mail). This includes a VA-wide Call Center Task Force that may ultimately address scheduling; however, the scope does not yet appear to be clearly defined. VA has an opportunity to evaluate its current call center use for scheduling and develop an approach based on existing VHA call centers in other areas (like Health Resource Centers) and leading private sector scheduling call centers. VHA can then evaluate which responsibilities and specialties should be handled at larger scheduling call centers. Additionally, VHA should analyze the appropriate degree of centralization (for example, regional or virtual call center) and the call center locations.
- **Ensure that the clinic manager training program and subsequent implementation are appropriately scoped and resourced to drive access and clinic management.** Different roles, accountabilities and levels of expertise exist across facilities for managing access and scheduling, which affects how access and scheduling is managed and prioritized at different facilities. Via the Choice Act, VHA was directed to develop a clinic management training program to address these gaps within the system. While many important scheduling functions are reported to be addressed in the training curriculum as it is currently envisioned, resourcing and accountability for these activities will be equally important in ensuring that VHA is able to fully utilize its provider capacity and the appointment supply made available to Veterans. Further, tools need to be developed and distributed to ensure that these new clinic managers are successful.

Despite many of its broader organizational and operational challenges, VHA can leverage multiple positive aspects of its current scheduling and access management practices in the future. For instance, VHA's scheduling policy has created the mechanism to identify potential supply-demand imbalances by tracking patients waiting for care at the clinic level. Similarly, VHA's efforts to encourage patient appointment adherence through a multi-pronged patient reminder approach, coordination of transportation and efforts to coordinate multiple services, where possible, demonstrate a commitment to supporting Veterans receiving care. Additionally, locally developed scheduling innovations demonstrate the potential for new scheduling tools and practices within the organization. For example, several VA Medical Centers (VAMCs) have developed home-grown "best practice" tools, including the predictive missed opportunity model, aggregated views of provider availability, and facility-centralized patient reminder systems across multiple modalities. In addition, VHA can build on its early efforts to modernize its patient-facing scheduling capabilities, such as online self-scheduling. This foundation suggests that VHA can draw on experience and assets within the organization, as well as on external best practices, to improve its scheduling processes.

In summary, if VA/VHA were to continue to build on existing assets, execute on its in-flight initiatives and supplement them by executing on the recommendations above, it may be able to offer a more consistent experience across clinics and facilities, expand appointment supply with existing provider resources and ensure better utilization of its supply. The impact of this for Veterans could come in the form of both improved experience and improved access.

Table of Contents

1 Introduction 1

2 Methodology 7

2.1 Assessment Design and Best Practice Codification 7
2.2 Information/Data Collection, Analysis and Comparison to Best Practice and Industry Practice 7
2.3 Synthesis of Findings and Recommendations 9
2.4 Limitations.......... 9

3 Cross-cutting Findings 11

3.1 System Limitations Prevent Accurate Visibility Into the Supply of Available Appointments, Inhibiting VHA's Ability to Understand the Gap Between Total Appointment Supply and Demand and to Effectively Manage Current Performance and Plan for Future.......... 11
3.2 Imbalance Between Supply and Demand has led to Policies That Add Responsibilities for Schedulers and Administrators 11
3.3 Clinics do not Consistently Employ Standard Industry Practices Related to Schedule Setup and Scheduling Processes 11
3.4 Facility-Level Differences in Performance Management and Accountability Limit System-wide Improvements to Access 12
3.5 VHA-Specific Processes Paired With a Scheduling System That Does not Simplify Processes Leads to a Greater Reported Need for Scheduler Training.......... 12
3.6 Scheduling Call Centers are not Maximizing Their Performance due to Their Small Scale and Disparate Service Offerings.......... 13

4 Cross-cutting Recommendations & Implementation Considerations 15

4.1 Cross-cutting Recommendations.......... 15
  4.1.1 Address System Limitations to Provide Visibility Into Aggregate Appointment Supply, Alternative Measures of Wait Times, and Provider-Level Performance Data.......... 16
  4.1.2 Codify Proven Scheduling Practices and Empower Clinics to Improve Appointment Utilization and Deliver a Consistent Patient Experience.......... 16
  4.1.3 Streamline Scheduling Policy Implementation With Supporting Tools and Implementation Guidance; Where Possible, Utilize Technology to Support.... 16
  4.1.4 Improve Scheduler Training by Sharing Local Best Practices and Increasing Experiential and on-the-job Training; Simultaneously, Minimize the Need for Training by Simplifying Policy Implementation and Improving System Functionality 17
  4.1.5 Design Scheduling Call Centers That can Provide Expanded Services for Veterans Relative to Current State.......... 17

4.1.6 Ensure That the Clinic Manager Training Program and Subsequent Implementation are Appropriately Scoped and Resourced to Drive Access and Clinic Management 17
4.2 Implementation Considerations 18
4.2.1 Pre-conditions for Implementation 18
4.2.1.1 Introduce End-to-end Owner of Access & Scheduling Implementation to Ensure Successful use of Desired Policies and Scheduling Practices ... 18
4.2.1.2 Increase Performance Management and Accountability for Access and Scheduling Performance 19
4.2.1.3 Convene a Standing Group to Streamline the Policy Approval Process to Allow Flexibility and Responsiveness to the Field 19
4.2.1.4 Improve the Existing Hiring Process to Ensure Adequately Skilled Scheduler and Provider Staffing 19
4.2.1.5 Ensure Progress Against Organizational Effectiveness Recommendations Described in Assessment L 19
4.2.2 Immediate Actions for Consideration 20

5 Provider Availability 23

5.1 Context & Approach 23
5.2 Findings 26
5.2.1 VHA Lacks an Understanding of Aggregate and Provider-Level Appointment Supply Relative to Demand Due to System Design Constraints 26
5.2.2 VHA Does not Utilize Demand Analysis and Forecasting to Develop Schedules that Match Patient Needs 28
5.2.3 VHA Does not Develop Schedules to Ensure Optimal Appointment Supply or Mix (For Example, New, Urgent, Follow-Up) 29
5.2.3.1 Provider Schedules may be Created Without Clear Linkages to Assigned Clinic Time 29
5.2.3.2 Lack of National Standards Regarding Appointment Lengths may Contribute to Patient Volume Variability from Provider to Provider 32
5.2.3.3 Appointment Mix May not Match Demand 35
5.2.4 Provider Cancellation and Leave Policies are Inconsistent and Poorly Monitored 37
5.2.5 Provider-Customized Rules and Schedule Holds can Result in Unfilled Appointment Slots and Difficulty in Rotating Schedulers 41
5.2.6 There is no Chain of Accountability/Ownership in Understanding and Managing Provider Availability and Schedule Design 42
5.3 Recommendations 43
5.3.1 In the Short-Term, Complete the Clinic Profile Cleanup Initiative to Improve Understanding of Appointment Supply 46
5.3.2 In the Longer Term, Transition to a System Design That Allows Accurate Viewing of Provider Supply 46
5.3.3 Develop an Appointment Demand Model to Supplement the Ability to Monitor and Forecast Aggregate Supply 46

- 5.3.4 Consider National Sub-Specialty-Specific Standards/Guidance on Session/Appointment Length and Develop VHA-Wide Policies for Provider Leave and Cancellations 47
- 5.3.5 Appropriately Scope, Resource, and Implement the Clinic Manager Program to Ensure That Provider Availability is Actively Managed 48

6 Scheduling Process........ 49

- 6.1 Context & Approach........ 49
- 6.2 Findings 51
  - 6.2.1 Schedulers' Ability to Efficiently Identify and Book Available Appointments is Limited by System Usability 51
  - 6.2.2 Numerous Policies And Processes Designed to Manage Appointment Supply/Demand Imbalance Increase Complexity for Schedulers and Result in Inconsistent Patient Experience 53
    - 6.2.2.1 Waitlist Policies, While Necessary to Understand Demand Backlog, Complicate the Scheduling Process Without Sufficient Implementation Guidance 54
    - 6.2.2.2 VHA's Consult Processes May Delay Scheduling and Affect Timeliness of Care........ 56
  - 6.2.3 Clinics Are not Maximizing Number of Appointments Completed as Originally Scheduled 58
  - 6.2.4 Patient Communication With Respect to Appointments can be Confusing and Contribute to Missed Opportunities or Lost to Follow-up Cases........ 62
    - 6.2.4.1 Patient Communication is Inconsistent Between Clinics, Creating Confusion 62
    - 6.2.4.2 Current Recall Process and 90-Day Scheduling Horizon may Also Create Patient Confusion, Limit Future Access for Individual Patients and Increase Scheduler Workload 65
  - 6.2.5 VHA-Specific Personnel Issues, Including Vacancies, may Hinder Use of Scheduling Best Practices 66
  - 6.2.6 Wait Time Metrics Require Subjective Input and Are Not Currently Supplemented With Industry Standard Metrics........ 69
  - 6.2.7 Lack of Accountability and Resources for Managing Patient Access and Scheduling Practices at the Facility Level may Limit the Spread and use of Best Practices........ 70
- 6.3 Recommendations........ 71
  - 6.3.1 More Effectively Implement Policy by Providing Supporting Tools and Processes, Utilizing Technology to Automate Tasks, and Creating National Enablers for Consult Process 73
  - 6.3.2 Improve and Standardize Facility Level Scheduling Practices to Ensure Utilization of Existing Appointment Supply and Consistent Patient Experience........ 74
  - 6.3.3 Create and Reinforce a Strong Practice Manager Role to Ensure Implementation and Accountability........ 75

7 Scheduling System 77

7.1 Context & Approach 77

7.2 Findings 79

7.2.1 VistA Scheduling Allows Basic Function of Booking an Appointment; However, Broader System Limitations Create Operational Challenges for Schedulers and Administrators 79

7.2.1.1 System Constraints do not Allow Industry Standard Levels of Supply/Demand and Performance Management, Including Wait Time Measurement 80

7.2.1.2 VistA Scheduling Does not Automate Several Scheduling Processes nor Simplify Managing Wait Lists 81

7.2.1.3 System Does not Offer Schedulers a User-Friendly way of Viewing Provider Availability 82

7.2.2 Interim Scheduling System Solutions Will Address Some Usability Challenges, But Will not Comprehensively Address Root Cause Issues 83

7.2.3 MASS Plan is Intended to Address Major Scheduling Capability Gaps Highlighted in This Report Through a COTS Product, Similar to Several Private Sector Providers 85

7.2.4 Further Study is Required to Determine Whether the MASS Plan is Feasible and Cost Effective 85

7.2.5 VA's Past IT Implementation Successes and Failures Demonstrate That a Feasible and Cost Effective Solution is Possible, but not Guaranteed 86

7.3 Recommendations 88

7.3.1 Implement Necessary non-System Changes Described in This Report; Continue to Implement Interim System Improvements That are Already in Progress 88

7.3.2 Perform Full Analysis of MASS Alternatives (if one has not yet Been Completed) and Ensure Comprehensive Implementation Plan 89

7.3.3 Scheduling System Improvements (Likely Through MASS) Should Address the System Changes Summarized in the Table Below 90

8 Scheduler Training 92

8.1 Context & Approach 92

8.2 Findings 93

8.2.1 Not All VHA Schedulers Receive Enough Initial Training or on-the-job Training; Training That is Delivered is Rarely Experiential, a Difference From Private Sector Health Systems 93

8.2.1.1 Some Schedulers Receive Relatively Little Initial Training; a Majority of Schedulers, AOs, and Providers Report That More Training for Schedulers Would be an Improvement 93

8.2.1.2 VHA Uses Less Experiential Training Than Many Private Sector Health Systems, Which may Result in More Limited Training Retention and Scheduler Performance 96

8.2.1.3 On-the-job Training is Inconsistent at VHA Facilities, With Some Schedulers Reporting a Difficult Transition From Classroom to Clinic or Call Center 99
8.2.2 VHA's Scheduling Processes are not as Simple and Standardized as Those in Many Private Sector Health Systems, Increasing Schedulers' Need for Training 101
8.2.2.1 Unlike VHA, Many Private Sector Health Systems Streamline the Overall Scheduling Function, Which Results in a Minimized Need for Training 101
8.2.2.2 Inconsistent Practices Within a VHA Facility's Clinics may Also Increase the Training Needs of Schedulers who Switch Between Clinics 102
8.2.3 Training Deployment Practices are Less Efficient Than They Could be 103
8.2.3.1 Facilities are Developing Duplicative Training Material 103
8.2.3.2 Lack of Clear Ownership for Training Hinders Dissemination of Standard Materials and Consistent Facility-level Delivery 107
8.3 Recommendations 110
8.3.1 Utilize More Initial Training, on-the-job Training, and Experiential Methods to Equip Schedulers for Their Responsibilities 111
8.3.2 Reduce Schedulers' Need for Training through More User-Friendly System and Streamlining National- and Clinic-Level Policies and Processes 112
8.3.3 Leverage Current Best Practice Knowledge and Develop Training Personnel to Make Training Deployment More Efficient 112

9 Scheduling Call Centers 115

9.1 Context & Approach 115
9.2 Findings 116
9.2.1 Most VHA Scheduling is Conducted Outside Call Centers; Where They Exist, VHA Scheduling Call Centers are Smaller Than the Provider Average 116
9.2.2 Existing VHA Scheduling Call Centers Have Highly Variable Organizational Structures and Scopes of Responsibility 117
9.2.3 VHA Does not Consistently Measure Performance Across its Scheduling Call Centers or Clinics 119
9.2.4 VHA Call Center Performance is Below Industry Average Where it is Measured 121
9.2.5 Health System Scheduling Call Centers Seek to Maximize Performance by Leveraging Scale 123
9.2.5.1 Many Private Sector Provider Scheduling Call Centers are Large and Centralized 123
9.2.5.2 Private Sector Scheduling Call Centers Measure Performance Consistently and Comprehensively 123
9.2.5.3 Private Sector Scheduling Call Centers Have Tools That Optimize the Scheduling Process 124
9.2.6 Larger Scale Call Centers Have Better Performance Outcomes 125

9.2.6.1 Centralizing Scheduling Could Improve Customer Experience for Patients and Could Reduce Staffing Needs ... 125
9.2.6.2 Centralized Scheduling Call Centers Have Lower per-Unit Resource Costs and put Less Stress on Space-Constrained Facilities ... 128
9.2.6.3 Larger Scale Call Centers can Provide More Coaching, Training, and Career Options Than Clinics ... 129
9.2.7 Implementation Difficulties Raised by Facility-Level Staff Highlight Prerequisites for Larger Scale Call Centers ... 130
9.2.8 Outside of Scheduling, VA has Proven it has the Capabilities to Sustain Call Centers at Scale ... 131
9.3 Recommendations ... 132
9.3.1 Designate a Central Owner for Scheduling Call Centers ... 134
9.3.2 Design Scheduling Call Centers that Can Provide Expanded Services for Veterans Relative to Current State ... 134

Appendix A Choice Act Legislation ... A-1

Appendix B Methodology ... B-1

B.1 Description of Data/Information Sources ... B-1
B.2 Description of Site Visits to VA Medical Centers (VAMCs) and Community-based Outpatient Clinics (CBOCs) ... B-2
B.2.1 Site Selection Approach for VAMCs ... B-2
B.2.2 Site Selection Approach for CBOCs ... B-5
B.2.3 Methodology for Site Visits ... B-6

Appendix C Provider Availability ... C-1

C.1 Best Practices for Provider Availability ... C-1
C.2 Past Reports on Provider Availability ... C-3

Appendix D Scheduling Process ... D-1

D.1 Additional Detail on Scheduling Process ... D-1
D.2 Best Practices for Scheduling Process ... D-7
D.3 Past Reports on Scheduling Process ... D-10

Appendix E Scheduling System ... E-1

E.1 Additional Detail on Scheduling System ... E-1
E.2 Best Practices and Benchmarks for Scheduling System ... E-7
E.3 Past Reports for Scheduling System ... E-8

Appendix F Scheduler Training ... F-1

F.1 Additional Detail on Scheduler Training ... F-1
F.2 Best Practices and Benchmarks for Scheduler Training ... F-5
F.3 Past Reports for Scheduler Training ... F-6

Appendix G Scheduling Call Centers ... G-1

G.1 Best Practices and Benchmarks for Scheduling Call Centers....................................G-1
G.2 Past Reports for Scheduling Call Centers..G-2

Appendix H Bibliography..H-1

Appendix I List of Acronyms... I-1

This page intentionally left blank.

List of Figures

Figure 1-1. Overview of the Relationship Between the Components of Assessment E................ 2

Figure 5-1. Elements of Provider Availability.. 24

Figure 5-2. Actual Orthopedic Surgeon's Profiles.. 27

Figure 5-3. Actual Physician Profiles From Same Clinic, Both Intended to be 1.0 cFTE 30

Figure 5-4. Portion of Assigned Outpatient Clinic Time Made Available For Appointment, Sept 2014 – Feb 2015 31

Figure 5-5. Follow-up Appointment Slot Length by Stop Code, Jan – July 2014 n = 152 VAMCs, 811 CBOCs 33

Figure 5-6. Average Follow-up Appointment Slot Length for Optometry, Stop Code 408 34

Figure 5-7. Rate of Appointment Cancellations by Clinic, Feb – July 2014, n = 99 Clinics Across 25 VAMCs 37

Figure 5-8. How Far in Advance do you have to Submit Requests for Leave/Vacation? n = 1,054 Respondents from 111 VAMCs and 173 CBOCs 39

Figure 6-1. Overview of VHA Scheduling Process.. 50

Figure 6-2. Screenshots from VistA Scheduling System 52

Figure 6-3. Time From Consult Submission to Appointment Creation for two VAMCs 57

Figure 6-4. Percentage of Clinic Appointments Completed as Originally Scheduled.................. 59

Figure 6-5. Missed Opportunity and Clinic Cancellation Rate, Feb – July 2014 60

Figure 6-6. Positive Response for use of Reminder at any Time in Scheduling Process From Schedulers Asked: "When do you use the Following Reminders?" VHA Employee Survey, N = 86 MSA Supervisors From 46 VAMCs and 20 CBOCs.. 63

Figure 6-7. Medical Support Assistant (MSA) Positions, on-the-job, Approved Hires, and Vacancies, FY2014.. 67

Figure 6-8. Typical Scheduling Responsibilities, VHA and Private Sector.................................. 68

Figure 7-1. Scheduling System Comparison.. 83

Figure 8-1. Response of Schedulers Asked: "How Would You Improve the Training of Schedulers?" 2015 VHA Employee survey, n = 825 Schedulers from 97 VAMCs and 128 CBOCs 95

Figure 8-2. Comparison of VHA and Private Sector Initial Training Delivery for Schedulers 97

Figure 8-3. Adult Learning Theory, Methods and Their Effectiveness, Based on Data From IBM Research and UK Post Office, Whitmore, 2002 98

Figure 8-4. Response of Schedulers Asked: "How Many Hours of Training Specific to the Following Topics did you Receive in Your Initial Training: On-the-job-training (for Example, Side-by-Side Coaching, Receiving Feedback)?" 2015 VHA Employee Survey, n = 825 Responses from 97 VAMCs and 128 CBOCs 100

Figure 8-5. Portion of VAMCs Locally Developing Training Material by Content Area, 2015 National Data Call, n = 51 VAMCs 104

Figure 8-6. Excerpt from MSA Training Checklist 105

Figure 8-7. Excerpt From "Scheduling How To's" 106

Figure 8-8. Archetypes of Reporting Structures Seen on Site Visits, n = 25 VAMCs 108

Figure 8-9. Portion of Schedulers Receiving Ongoing Training at Least Once per Month by Reporting Structure, 2015 National Data Call, n = 24 MSA Supervisors From 20 VAMCs 109

Figure 9-1. Response of Facilities Asked: "What Specialties Does Your Call Center support?", n = 72 facilities 118

Figure 9-2. Response of Facilities Asked: "What Functions Does Your Call Center Support?", n = 72 facilities 119

Figure 9-3. Response of Clinic Administrators Asked: "How frequently is Average Call Hold Time for Patients Tracked and Reported?", n = 71 from 46 VAMCs and 20 CBOCs (certain facilities submitted multiple responses) 120

Figure 9-4. Response of Clinic Administrators Asked: "How Frequently is First Call Resolution Tracked and Reported?", n = 71 from 46 VAMCs and 20 CBOCs 121

Figure 9-5. Self-Reported ASA and Abandonment Rate for Scheduling Call Centers; n=65 122

Figure 9-6. Benefits of Scale in Call Centers; FTEs Required Based on Queue Characteristics 126

Figure A-1. Choice Act Language for Assessment E A-1

Figure C-1. Previous Reports Relevant to Provider Availability C-3

Figure D-1. Established Patient Appointment Booking Process D-2

Figure D-2. New Patient Appointment Booking Process D-5

Figure D-3. Previous Reports Relevant to Scheduling Process D-10

Figure E-1. Past Reports for Scheduling Systems E-8

Figure F-1. Scheduler Training – Initial Training for Schedulers on Policies and Processes F-2

Figure F-2. Scheduler Training – Initial Training for Soft Skills F-3

Figure F-3. Scheduler Training – Initial Training for Scheduling Systems F-4

Figure F-4. Scheduler Training – Initial Training for Scheduling Systems F-5

Figure F-5. Previous Reports Relevant to Scheduler Training and Operating Structure F-6

Figure G-1. Previous Reports Relevant to Scheduling Call Centers G-2

List of Tables

Table 1-1. The Five Areas Correspond in the Following Way to the Choice Act Elements 2

Table 4-1. Recommendations and actions for consideration 20

Table 7-1. Choice Act Requirements and Relevant Recommendations 90

Table A-1. Legislation Language Mapping A-2

Table B-1. Chi-square Testing Results for VAMC Representativeness B-3

Table B-2. Chi-square Testing Results for CBOC Representatives B-5

Table B-3. Typical Site Visit Schedule – Day 1 .... B-6

Table B-4. Typical Site Visit Schedule – Day 2 .... B-8

Table B-5. Roles Interviewed at Site Visits B-9

Table C-1. Scheduling Process – Best Practices and Benchmarks C-1

Table D-1. Glossary of Patient Wait Lists D-3

Table D-2. Scheduling Process – Best Practices and Benchmarks D-7

Table D-3. Wait Times – Best Practices and Benchmarks D-9

Table E-1. MASS Setup Unique/High Priority Business Needs E-1

Table E-2. Manage Veteran Information Unique/High Priority Business Needs E-2

Table E-3. Request Management Unique/High Priority Business Needs E-3

Table E-4. Appointment Management Unique/High Priority Business Needs E-3

Table E-5. Coordinate Associated and Occasion of Service Unique/ High Priority Business Needs E-5

Table E-6. Manage Encounter of Care Unique/High Priority Business Needs E-6

Table E-7. Report Management Unique/High Priority Business Needs E-6

Table E-8. Scheduling Systems – Best Practices and Benchmarks E-7

Table F-1. Scheduler Training – Initial TMS Training for Schedulers F-1

Table F-2. Training – Best Practices and Benchmarks F-5

Table G-1. Call Center – Best practices and Benchmarks G-1

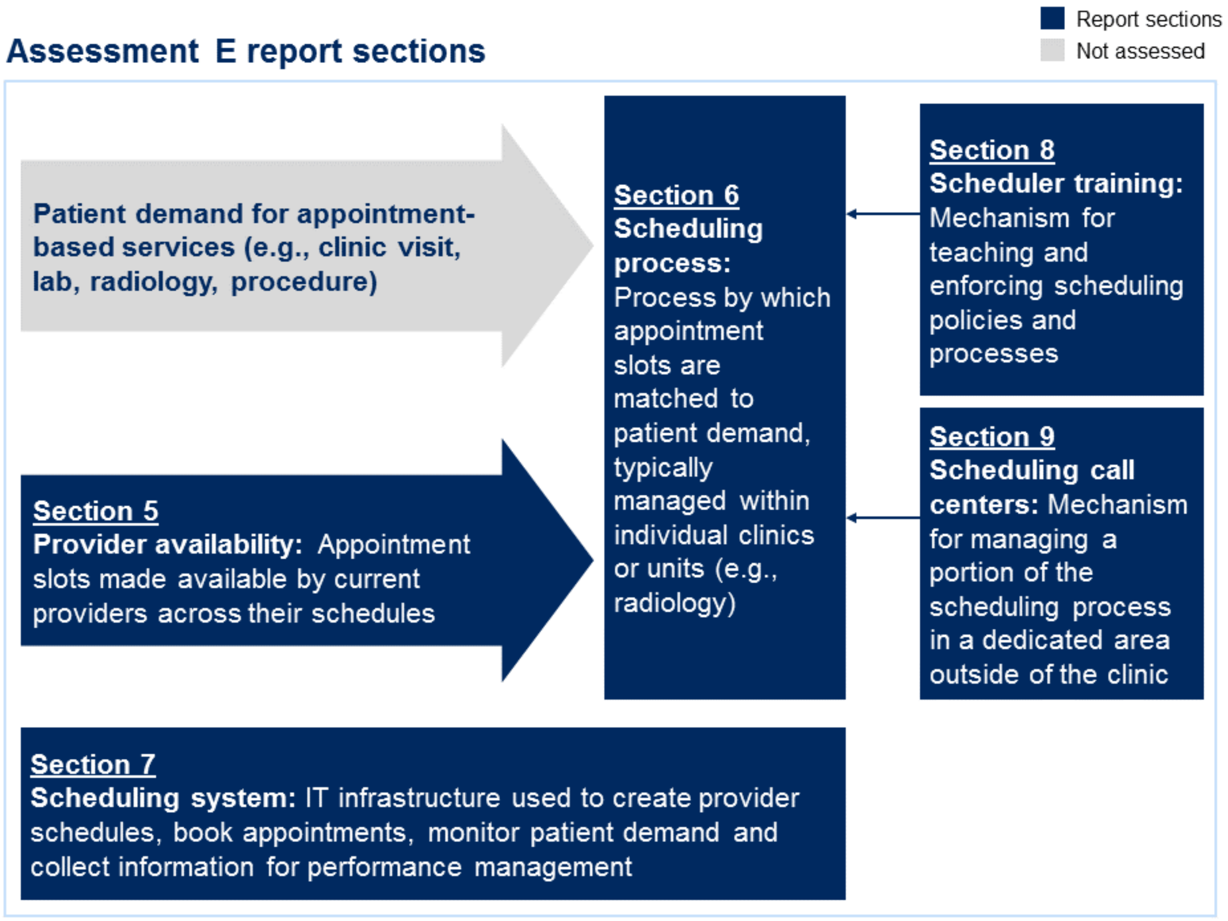
This page intentionally left blank.

1 Introduction

The task of Assessment E was to assess the “workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive care, medical services, or other health care from the Department.” There are two major factors that affect the ability of any provider system to meet patient appointment demand in a timely matter: overall provider capacity, which translates into the supply of available appointments, and the effective matching of that capacity with patients, the “scheduling process” and its supporting elements such as having well-trained schedulers. The act of booking an appointment is only one part of the scheduling workflow picture, and its effectiveness often depends on the state of appointment availability. A scheduler cannot book an appointment for a patient if there are no appointments available to be booked. Therefore, Assessment E focused on understanding the ways scheduling workflow could be optimized to both increase the appointment availability of current providers and ensure more effective matching of this availability to demand through the scheduling process. This assessment was conducted within the constraint of current provider capacity. Note that provider availability is also influenced by patient demand as demand should inform the mix of appointments (e.g., new, urgent, follow) offered by an individual provider.

The following exhibit defines the elements of the scheduling workflow that Assessment E considered:

Figure 1-1. Overview of the Relationship Between the Components of Assessment E


Assessment E report sections
Report sections
Not assessed
Patient demand for appointment-based services (e.g., clinic visit, lab, radiology, procedure)
Section 5
Provider availability: Appointment slots made available by current providers across their schedules
Section 6
Scheduling process: Process by which appointment slots are matched to patient demand, typically managed within individual clinics or units (e.g., radiology)
Section 8
Scheduler training: Mechanism for teaching and enforcing scheduling policies and processes
Section 9
Scheduling call centers: Mechanism for managing a portion of the scheduling process in a dedicated area outside of the clinic
Section 7
Scheduling system: IT infrastructure used to create provider schedules, book appointments, monitor patient demand and collect information for performance management

The following table describes the way in which the report is structured across these elements to address the requirements of the Choice Act:

Table 1-1. The Five Areas Correspond in the Following Way to the Choice Act Elements

Report section	Corresponding Choice Act language	Chapter
▪ **Provider availability**: This considers the availability of providers to offer care for Veterans in outpatient clinics, including how overall time in clinic is managed; how schedules are developed; and how schedule changes may affect the availability of appointments.	*(1) (E) The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.* *(2)(A)(iv) Assess whether health care providers of the Department are making changes to their schedules that hinder the ability of employees*	5

Report section	Corresponding Choice Act language	Chapter
	conducting such tasks to perform such tasks. *(vi) Assess whether booking templates for each medical facility or clinic of the Department would improve the process of scheduling such appointments.*	
- **Scheduling process**: This assesses the scheduling process from beginning to end, including making appointments for clinic visits, surgery, procedures and ancillary services (e.g., radiology); measuring wait times; managing wait lists and backlogs; monitoring patient appointment adherence; and defining the role of the scheduler (Medical Support Assistant or MSA).	*(1) (E) The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.* *(2)(A)(viii) Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:* *(II) Changes in monitoring and assessment conducted by the Department of wait times of Veterans for such appointments.*	*6*
- **Scheduling system**: This covers the technology used for scheduling, including where the pain points are for administrators, schedulers and patients. This section also looks at proposed efforts to procure a new scheduling system.	*(iii) Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.* *(vii) Assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solutions.* *(viii) Recommend actions, if any, to be taken by the Department to improve the process for scheduling such*	*7*

Report section	Corresponding Choice Act language	Chapter
	appointments, including the following: *(III) Changes in the system used to schedule such appointments, including changes to improve how the Department—* *(aa) measures wait times of Veterans for such appointments;* *(bb) monitors the availability of health care providers of the Department; and* *(cc) provides Veterans the ability to schedule such appointments.*	
▪ **Scheduler training:** This evaluates who has been trained on scheduling; MSA scheduling training content; delivery practices; and the organizational reporting structure for MSAs.	*(2)(A)(i) Review all training materials pertaining to scheduling of appointments at each medical facility of the Department.* *(ii) Assess whether all employees of the Department conducting tasks related to scheduling are properly trained for conducting such tasks.* *(viii) Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:* *(I) Changes in training materials provided to employees of the Department with respect to conducting tasks related to scheduling such appointments.*	*8*
▪ **Scheduling call centers:** This studies the use of call centers for scheduling, and considers whether further centralization could improve timeliness and the scheduling experience.	*(v) Assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments.*	*9*

Please see Appendix A for findings and recommendations from this report mapped to the Choice Act language.

Assessment E is closely connected to several other assessments within the Choice Act, including, but not limited to, assessments B (health care capabilities), D (access standards), G (clinical staffing), H (information technology), and L (leadership). In order to avoid overlap and duplicative analysis, assessments were completed in coordination where possible. We have indicated instances where further relevant analysis is included in related assessment reports. In particular, with respect to access standards including wait times for appointments at VHA relative to the broader industry, Assessment E relied on the findings of the Institute of Medicine's Assessment D. Wait times are influenced by a number of factors including provider supply/availability, patient demand (including services required and the location of patients relative to VHA locations), as well as the scheduling process itself. Therefore, Assessment E focused on scheduling outcomes around available appointment slots and appointment slot utilization rates rather than wait times, which are influenced by a number of other factors, to describe the current state of VHA scheduling workflow performance.

A number of other factors beyond the workflow process for scheduling appointments and other areas of the Choice Act assessments contribute to access to care for Veterans. However, this assessment did not examine several areas that were out of scope of the Choice Act legislation, but may warrant further study:

- Outpatient clinical workflows that could drive provider productivity improvements, including facility/space resources, clinical and non-clinical staffing levels, outpatient clinic throughput/clinic operations
- Other mechanisms to create access, such as the increased use of new care delivery models like telehealth, specialty patient-aligned care teams, or outsourced care provision
- The requirements, career path, and pay grade of the Medical Support Assistant (MSA), a position with significant scheduling responsibility
- Scheduling for non-VA care, including that which is facilitated by the Choice Act; however, this assessment did consider the hand-off to the non-VA care office

This page intentionally left blank.

2 Methodology

To design and conduct this assessment, we developed a methodology that drew on literature review on scheduling workflow best practices, previous VA/VHA scheduling workflow-related reports, private sector case studies, and our experience with successful access/scheduling transformations across public and private sector health systems in the U.S. Our approach included the following three steps:

2.1 Assessment Design and Best Practice Codification

To design this assessment, we developed a detailed data/information request covering categories typically available from provider systems, including appointment-level data, scheduling policies, and other information detailed in Appendix B.1. Concurrently, the assessment team researched best practices[4] in literature, interviewed health system leaders responsible for training and scheduling systems sourced from a third party market research group, interviewed leadership from two integrated systems, Kaiser Permanente and Geisinger Health System, and drew on our previous assessment work with other systems. This input informed an on-site interview guide and collection tool for our site visits (site visit selection described in more detail below), a frontline survey, and a set of standard analytics to complete (for example, provider time in clinic).

Note, there are significantly fewer published academic or professional association standards in the patient scheduling area than in other areas impacting patient care, such as quality. Despite this, we attempted throughout the report to compare and contrast VHA performance in scheduling to external standards, where possible. To supplement literature, we use "private health system practices", drawn from private health system leadership interviews and McKinsey scheduling/access transformations, or specific health system examples (where those health systems are known for access or have integrated characteristics similar to VHA) to demonstrate common practices that health systems utilize to improve scheduling and access. We use the term "high performance" selectively to refer to practices utilized by select VAMCs that performed well on certain metrics (e.g., telephone average speed of answer).

2.2 Information/Data Collection, Analysis and Comparison to Best Practice and Industry Practice

This step focused on our assessment through site visits and data/information collection (full list of sources and site visit selection methodology is detailed in Appendix B.2).

VHA site visits: We visited 25 randomly selected VA Medical Centers (VAMCs) and 23[5] community-based outpatient clinics (CBOCs) near these facilities. In combination, these facilities were statistically representative of VHA facilities across a selection of criteria: size, geography, access performance, and other factors detailed in the Appendix B.2. We also visited two additional VAMCs not randomly selected, Indianapolis and Phoenix. Indianapolis was chosen because it is the only VHA facility in the country that uses a software system other than VistA to schedule outpatient appointments. Phoenix was visited due to its attention in previous reports. We completed group interviews for both schedulers and administrators at each of the 25 facilities, which included 187 schedulers and 174 administrators. In addition, we conducted 486 total interviews, including 31 with schedulers, 126 with providers,[6] and 329 with administrators.[7]

---

[4] Best practices detailed in Appendix C.1, D.2, E.2, F.2, and G.1

[5] We had originally been scheduled to visit 24 CBOCs (one CBOC per randomly selected VAMC, plus additional CBOC in Lexington during pilot phase). However, our visit to Northport VAMC's Bay Shore CBOC did not occur due to closure, resulting in 23 total CBOC visits.

VHA data analysis: Wherever possible for our quantitative analyses, we attempted to look at large datasets across facilities and clinics to understand differences in scheduling performance. These datasets included the Clinic Access Index available through the Veterans Support Service Center (VSSC) and Corporate Data Warehouse (CDW) booked appointment data, which we reviewed across site visit facilities and the system more broadly, where possible. It should be noted that we did not conduct a *review* to validate the accuracy of data that was provided, although, where applicable, we did note potential data integrity issues highlighted during site visit interviews.

In some cases, our analysis is based on manual sampling of provider schedules where accurate centralized data was not available (for example, time scheduled in clinic). However, the scale of these manual reviews was selective due to their time-intensive nature and the ability of sites to provide data in a timely manner. As a result, we have attempted to use these as examples of individual provider-level variability rather than representations of VHA-wide performance.

In addition, to understand certain aspects of the scheduling workflow across all facilities, we requested VAMC data and information from a national data call to which 102 VAMCs (67 percent facility response rate, assuming 152 VAMCs)[8] responded and a front-line survey of schedulers, providers and administrators that was distributed nationally and received 6,649 responses.[9]

VHA interviews: We supplemented our site visits with an additional 37 VHA Central Office and subject matter expert interviews to obtain a fuller picture of the scheduling workflow. These interviews included clinical, administrative and technology leaders.

Additional industry interviews: As described above, we conducted 20 interviews of leaders in private sector health systems with responsibility for patient access or specific elements of the scheduling workflow, for example, technology. We also visited Kaiser Permanente and interviewed leadership within Geisinger Health Systems; both are integrated systems known for leadership in access.

---

[6] Includes Chief of Staff interviews

[7] Includes clinic- and facility-level administrator interviews

[8] The number of facilities cited in Assessment E's report may differ from numbers cited in other assessments. Our facility statistics come from 2014 VA Site Tracking (VAST) data, which was provided in December 2014. A new site classification system was announced in March 2015, which reclassified a number of VAMCs and CBOCs (Clancy, 2015).

[9] Response rate unknown, as total numbers for these groups were not available

Using this information, we then compared our qualitative and quantitative observations of VHA performance to best and broader industry practices to assess the current state of VHA scheduling workflows and provide insight into overall findings and potential recommendations.

2.3 Synthesis of Findings and Recommendations

In this step, we synthesized findings to draw out the most prominent insights from our assessment as a whole. From this set of synthesized findings, we developed recommendations that VHA could consider.

An independent Blue Ribbon Panel, consisting of high-level health care industry leaders, was formed by CAMH to provide expert input throughout the assessment process. The panel members possessed a thorough understanding of health care industry best practices and leading edge practices. The Blue Ribbon Panel provided advice and feedback on the emerging findings and recommendations for the assessment.

Due to a significant finding around the lack of available appointment slot supply data, we were limited in our ability to estimate the impact of recommended changes. This data limitation is due to system design constraints, described in detail in Provider Availability Section 5, that prevent accurate measurement of appointment supply.

2.4 Limitations

This assessment has several important limitations including: we were not able to survey Veterans or collect their input at scale, we operated under an aggressive time frame, and – as often noted – there were limitations on the availability of data.

Two of the significant data/information limitations were relevant to Scheduling Process Section 6 and Scheduling Systems Section 7:

Scheduling Process:

We requested data from VHA to analyze scheduling outcomes data (for example, appointment slot utilization) across a range of appointment-based services, including clinic visits, lab and radiology (note, our interviews suggested that not all facilities schedule services such as lab and radiology in advance, and instead use same day scheduling or do not schedule appointments at all). For lab and radiology, VHA was not able to provide data on appointment slot supply, where it would be applicable (facilities that schedule the services), nor utilization rates for these services. Therefore, our understanding of challenges in appointment scheduling for services beyond clinic visits was limited to interviews with administrative heads of the lab, radiology and procedure units at a sub-set of site visit facilities, and was noted, where there were unique insights, in Scheduling Process Section 6. As mentioned in the Executive Summary, clinic appointment slot supply cannot be calculated in aggregate due to overlapping provider schedules (described in Provider Availability Section 5); however, we were able to analyze data on completed clinic appointments to understand scheduling outcomes and potential challenges (shown in the Scheduling Process Section 6).

Scheduling System:

For Assessments E and H, a full scope assessment of the current plan to acquire a commercial off-the-shelf solution via the MASS procurement was not possible due to sequestration and legal constraints on VA and VHA staff during the selection period. Due to the constraints surrounding the technical evaluation for MASS, we were unable to interview key members of the MASS procurement team, including program management leadership, which would have provided insights into the budgeting, vendor selection process, and implementation planning for the scheduling system replacement. These MASS team members were involved over the life of the RFP development (initiated May 2014), and some have had a far longer involvement in both Scheduling and other VHA/OI&T programs and projects. As of July 2015, the technical evaluation was still on-going.

3 Cross-Cutting Findings

This assessment has surfaced six cross-cutting findings that suggest significant opportunity for improvement to the VHA scheduling process. In total, we believe that these issues are negatively impacting both patient access to outpatient appointments (in terms of total number of appointments available and the matching of patients to those available appointments) and the patient experience of scheduling an appointment with VHA.

3.1 System Limitations Prevent Accurate Visibility Into the Supply of Available Appointments, Inhibiting VHA's Ability to Understand the Gap Between Total Appointment Supply and Demand and to Effectively Manage Current Performance and Plan for Future

Due to system design limitations, some providers operate across multiple potentially overlapping booking templates or "clinic profiles" for any given day or session. As a result, these profiles, when aggregated, provide an inaccurate picture of total available appointment supply and make it challenging to easily understand whether appointment supply matches the quantity VHA should expect given the number of providers. The issue of overlapping profiles not only affects centralized calculations of overall and provider-level appointment supply, but also makes it challenging to calculate provider utilization rate, which is an essential metric for managing access to care. These limitations mean VHA cannot determine how much patient demand its current provider capacity can meet in a timely manner.

3.2 Imbalance Between Supply and Demand has led to Policies That Add Responsibilities for Schedulers and Administrators

Because VHA has a persistent backlog of patient demand, VHA created additional policies that do not exist in the private sector, such as the capture of patient desired date and the use of the Electronic Wait List (EWL). These policies for measuring wait times and managing waitlists have resulted in a significant number of additional activities required within the scheduler's day-to-day workflow. Further, the implementation of these policies is left largely to frontline interpretation, which may also result in inconsistent experience for patients across clinics or facilities. For example, use of the EWL varies across clinics; some clinics use it solely to measure backlog while others use it to highlight patients who may be willing to take an appointment that becomes available at the last minute (Choice Act site visits, interviews, 2015). Veterans may then experience variation in when they are removed from the waitlist depending on how their clinic has implemented EWL.

3.3 Clinics do not Consistently Employ Standard Industry Practices Related to Schedule Setup and Scheduling Processes

VHA clinics are inconsistent in their use of industry and VHA best practices in scheduling, resulting in a fewer appointment slots available than may be possible within existing provider capacity and a significant number of booked appointments not being completed as originally scheduled. On schedule setup, examples of these practices in common use in industry and within certain services (such as Primary Care) within VHA include using standard appointment lengths within a sub-specialty and determining appointment mix (for example, number of new patient slots) based on patient demand (Institute for Healthcare Improvement (IHI), “Reduce Scheduling Complexity,” n.d.; Primary Care Clinic Profile Standardization Guide, 2014). Similarly, inconsistent scheduling practices, such as the ways in which appointment reminders are used, exist across facilities and clinics. For example, a patient could expect a reminder from a clinic and not receive it (and potentially not go to the appointment as a result). Ultimately, the variability in these practices may result in reduced appointment availability and utilization as well as inconsistent patient experience.

3.4 Facility-Level Differences in Performance Management and Accountability Limit System-wide Improvements to Access

VHA facilities lack consistent organizational structures for managing scheduling or access and, in many cases, lack dedicated resources to manage performance and outcomes for these activities. Given structural differences, formal monitoring of schedules is not a clearly defined duty for any staff members at the facility level, which hinders cross-system sharing of best practices, policy dissemination, and process standardization. In addition, this lack of consistency in organizational structure and accountabilities limits VHA performance management of facilities, as no one individual is specifically accountable and data analysis is cumbersome.[10] The Veterans Choice Act (section 303) identified this lack of accountability and aims to assign management of access responsibilities to a particular role within each clinic and to provide tools and processes to help perform this duty (“Veterans Access, Choice, and Accountability Act of 2014,” 2014). VHA plans to fulfill this mandate without any new facility hires; instead, the organization will designate current FTEs as owners of these responsibilities at the clinic and facility levels (Access and Clinic Administration Program [ACAP], interviews, 2015).

3.5 VHA-Specific Processes Paired With a Scheduling System That Does not Simplify Processes Leads to a Greater Reported Need for Scheduler Training

In response to a survey, 90 percent of schedulers noted the need for additional training in at least one area (for example, wait times and wait list policies) to become proficient at executing their basic responsibilities (Assessment E VHA Employee Survey, 2015). This perceived need for enhanced training may be due to systems and processes that do not simplify scheduler responsibilities, a common focus among private sector executives we interviewed. For instance, scheduling systems of private sector organizations have more user-friendly interfaces, fewer unique programs, and more automated processes (Private sector health system, interviews,

---

[10] For example, at present, there is no easy or automated way to consistently and accurately monitor provider schedules.

2015). As a result of greater complexity, VHA schedulers must receive additional training (on wait times and wait list policies, for example) to become proficient at executing basic VHA scheduler responsibilities.

3.6 Scheduling Call Centers are not Maximizing Their Performance due to Their Small Scale and Disparate Service Offerings

VHA call centers are smaller than industry standard (median size of 12 agents within VHA compared to 28 agents in private sector health systems and 110 agents across other industries) (Assessment E national data call, 2015; Belfiore et al., 2015). The scheduling call centers that do exist provide different services and support different specialties depending on the facility. Due to efficiencies in managing call demand that can lead to service improvement for patients, other provider systems have, in some cases, moved to pooling call volumes in more central locations. Larger scale call centers can also have lower per-unit costs and put less stress on space-constrained facilities than facility- or clinic-based operations. Further, larger call centers may be able to offer more coaching, training and career options to schedulers.

Overall impact on patients

The above findings have significant implications for the patient. Overall, limited visibility into supply prevents VHA from understanding its true workforce needs such that it can appropriately plan for patient demand. Variation in how provider schedules are developed and managed likely results in more limited appointment availability for patients even at existing provider capacity. In addition, inconsistent application of policy and scheduling practices from clinic to clinic as well as different service levels and service availability outside of the clinic from call centers result in variation in patient experience, which can be confusing for the patient.

While we did not talk to Veterans directly as part of this assessment, we did review Veterans' perspectives on scheduling that were shared publically. A 2014 survey of more than 20,000 Veterans conducted by the Wounded Warrior Project echoed several of the challenges that we observed during this assessment. For mental health and physical healthcare services, more than 40 percent of respondents cited "difficulty in scheduling appointments" and "experienced lapsed and inconsistent treatment because of canceled appointments and switches in providers" as the top two most common reasons for difficulties in getting health care. Approximately 60 percent of those surveyed had VA health insurance. (2014 Wounded Warrior Project Survey Report of Findings).

Quotes from several Veterans further described their scheduling experience:

> "I think the biggest issue is the transition of health care. I always am told by VA doctors that it's "my health care," but it seems like they do very little on their end. I can't ever seem to get the appointments I need, they switch my providers constantly, dragging out even the most basic of medical issues for years now" (2014 Wounded, pg. 130)
>
> "I contacted the VA medical center near me to schedule my medical intake. I had a set appointment that was canceled by the VA. When I called to reschedule, I

> was given a new appointment. This was again canceled by the VA because they said I was missing paperwork which I had already given to the VA. When I called to reschedule again, they instructed me since I missed two appointments, which were canceled by the VA, I would have to restart the entire medical intake process. I have not yet been through the VA medical intake. I am in constant pain and see a chiropractor at least once a week. The VA disability states my issue is non-permanent and I will lose my rating. My pain limits me from working out and enjoying the things I used to before this pain began." (2014, Wounded, pg. 129)
>
> ". . . you are out there trying to work and go to school and take care of yourself by utilizing the VA health care system because it's all you can afford, but they can only schedule appointments in the middle of the day when you have to work. How about a little flexibility there!?..." (2014 Wounded, pg. 130)

These perspectives along with our findings from this assessment collectively suggest that VHA facilities have an opportunity to increase appointment supply within existing resource constraints, ensure that available appointments are fully utilized and create an improved patient experience for the Veterans it serves.

4 Cross-Cutting Recommendations & Implementation Considerations

4.1 Cross-cutting Recommendations

Given the access crisis and the recent Veterans Access, Choice and Accountability Act, VHA reports that many new efforts are already underway to address some of the issues described above. VHA plans to introduce short-term system enhancements to improve system usability for schedulers and longer-term changes to enable a resource-based view of providers and other assets (for example, facility space). VHA is also developing a clinic/group practice manager role and management training program, which was required by Section 303 of the Choice Act and requires VA to "…to provide in-person, standardized education on systems and processes for health care practice management and scheduling to all appropriate employees…" ("Veterans," 2014). Additionally, VHA released scheduling policy clarifications in May 2015 to clarify elements of the existing Scheduling Directive including the use of wait lists and other scheduling and access-related practices. Finally, in May 2015, VA launched an organization-wide Contact Center Taskforce to review the current state of telephone services at VA across various areas including scheduling. Further details of relevant efforts underway can be found in the recommendations sub-sections of the report.

If successful, the above efforts will improve the ability to monitor appointment supply and demand, introduce facility-level owners for access management, clarify policies, and improve baseline call center performance and best practices. In addition, it may be important to address limitations in these initiatives. For example, these initiatives may not create tools to ensure success and accountability of the clinic managers, do not automatically create one schedule per provider, nor address ways to automate national scheduling policies. Further, they may not ensure the dissemination of best practices, address the need to improve call center service levels, or reduce the need for training.

To address these gaps, we recommend several actions. In alignment with Section 201 of the Choice Act, Section 201 assessments' findings and recommendations were developed independently. We therefore expect these recommendations would be refined by VHA leadership and the Commission on Care. Additional detail on the supporting recommendations can be found in the sub-assessment sections of this report (Sections 5-9).

Our overarching recommendations for Assessment E are the following:

4.1.1 Address System Limitations to Provide Visibility Into Aggregate Appointment Supply, Alternative Measures of Wait Times, and Provider-Level Performance Data

VHA providers can operate across multiple and sometimes overlapping clinic schedules (also known as “profiles”),[11] which can result in double-counting of appointment slots when aggregated. VHA has a current initiative to clean-up overlapping schedules and unused clinic profiles that should result in a more accurate view of each clinic’s appointment slot supply. Although this is an important first step, the effort may not eliminate all overlap in schedules and will not by itself allow understanding of appointment supply and utilization. One consolidated schedule for each provider would allow VHA to capture total appointment supply and measure the industry-standard wait time metric. With VA OI&T’s current procurement of a new scheduling system (discussed in detail in section 7, Scheduling System), VHA may be on the path to addressing system limitations. Of course, when updating or acquiring a system to support scheduling, it is important to understand the business case relative to modifying the existing system or locally sourcing solutions at the facility/regional level.

4.1.2 Codify Proven Scheduling Practices and Empower Clinics to Improve Appointment Utilization and Deliver a Consistent Patient Experience

Several pockets of scheduling best practice exist within VHA, such as the predictive missed opportunity model. However, many of the best practice VHA tools and processes are not widely disseminated nor utilized. The VHA ACAP Office reported that it is beginning to codify system-wide knowledge of scheduling best practices, but there is also an opportunity to ensure that these practices are consistently utilized in the field (ACAP, interviews, 2015). This will require addressing the lack of clinic management resourcing, addressing scheduler vacancies and ensuring that providers have an understanding of why certain practices (for example, overbooking) may be necessary to provide access.

4.1.3 Streamline Scheduling Policy Implementation With Supporting Tools and Implementation Guidance; Where Possible, Utilize Technology to Support

The current Scheduling Directive policy is designed to aid VHA facilities in managing in an environment of excess demand relative to the appointment supply it is offering. This has resulted in policy steps, such as wait time capture and wait list management being added to the scheduling process, which can result in inconsistent patient experience due to discrepancies in policy interpretation and implementation in the field. For instance, to adhere to the policy regarding the Electronic Wait List, the scheduler will place a patient scheduled outside of 90 days on a wait list, an additional step in the scheduling process. Further, while the EWL prioritizes Veterans to be scheduled based on policy, schedulers can find it challenging to use the list in conjunction with other policies (e.g., how many times the patient should be called before moving to the next patient in the list). In contrast, an ideal system would automatically place relevant patients on the EWL, provide a manager with a comprehensive dashboard for monitoring the waitlist demand, and prioritize which patients should get the first available appointments based on additional parameters. As a result, these changes would improve schedulers' efficiency and improve consistency of policy implementation.

---

[11] Described in Provider Availability Section 5 of this report

4.1.4 Improve Scheduler Training by Sharing Local Best Practices and Increasing Experiential and on-the-job Training; Simultaneously, Minimize the Need for Training by Simplifying Policy Implementation and Improving System Functionality

Currently VHA's need for scheduler training is exacerbated by its scheduling software, policies (like EWL), and clinic- and provider-specific scheduling rules. Improvements to the scheduling systems, streamlining policy implementation, and minimizing unnecessary clinic-specific rules would reduce demands for schedulers' training and create more consistent patient scheduling experience. To optimize its program, VHA should also leverage local best practices to create an improved and standardized curriculum for training and minimize duplication of materials development at the facility-level. In addition, training should be delivered using more experiential training methods to increase its effectiveness and information retention by schedulers.

4.1.5 Design Scheduling Call Centers That can Provide Expanded Services for Veterans Relative to Current State

Currently, VHA scheduling call centers are managed locally at the facility level. As a result, most are small (median size of 12 schedulers, based on facilities that responded to our data call) and each call center varies in regards to the responsibilities and specialties for which it is responsible (Assessment E national data call, 2015). Decentralized call centers are difficult to centrally monitor and manage with regards to patient experience. Through the new MyVA effort, the organization is examining how it interacts with Veterans across various channels (such as, web, call centers, mail). This includes a VA-wide Call Center Task Force that may ultimately address scheduling; however, the scope does not yet appear to be clearly defined. VA has an opportunity to evaluate its current call center use for scheduling and develop an approach based on existing VHA call centers in other areas (like Health Resource Centers) and leading private sector scheduling call centers. VHA can then evaluate which responsibilities and specialties should be handled at larger scheduling call centers, and which ones to outsource. Additionally, VHA should analyze the appropriate degree of centralization (for example, regional or virtual call center) and the call center locations.

4.1.6 Ensure That the Clinic Manager Training Program and Subsequent Implementation are Appropriately Scoped and Resourced to Drive Access and Clinic Management

Different roles, accountabilities and levels of expertise exist across facilities for managing access and scheduling, which affects how access and scheduling is managed and prioritized at different facilities. Via the Choice Act, VHA was directed to develop a clinic management training program to address these gaps within the system. While many important scheduling functions are reported to be addressed in the training curriculum as it is currently envisioned, resourcing and accountability for these activities will be equally important in ensuring that VHA is able to fully utilize its provider capacity and the appointment supply made available to Veterans. Further, tools need to be developed and distributed to ensure that these new clinic managers are successful.

4.2 Implementation Considerations

Below, we have listed the changes that we believe are fundamental preconditions for successfully implementing the recommendations described in Section 3 and the detailed report sections, as well as suggested immediate actions to be taken at the national level.

4.2.1 Pre-conditions for Implementation

Many of the challenges we and other assessment teams have observed are interrelated and highly complex. Implementing solutions to long-standing challenges will require collaboration among Congress and the Executive Branch, VA and VHA leadership (VA Central Office, VISN, and VAMC) and staff, as well as the unions and external stakeholders. We see this assessment as an opportunity for improvement, to be achieved by all stakeholders through a combination of local, regional, and national action. Addressing these challenges will require sustained commitment as a part of an integrated transformation effort for the system as a whole.

The VHA scheduling process involves many complex policies and processes, some of which do not exist in private industry. The recommendations summarized earlier in this section include both fundamental shifts to the system as well as tactical changes that can be made at the local level, while more far-reaching solutions are being implemented. We believe there are several essential preconditions to implementing these and transforming scheduling at VHA:

4.2.1.1 Introduce End-to-end Owner of Access & Scheduling Implementation to Ensure Successful use of Desired Policies and Scheduling Practices

Policies that impact scheduling are developed centrally by VHA (for example, by the VHA ACAP office) and then implemented in the field by local frontline leaders. The intended purpose of a policy is not always clear to the facility and clinical leadership. As a result, many policies are not implemented as intended or not implemented at all. In other cases, facility and clinical leaders understand the policies but do not feel that they have the tools (for example, standard operation procedures, prediction models, waitlist dashboards) to successfully implement the desired policy. Further, groups at VHA that are tasked to create the national policies do not have the operational control to test and refine policies in the field due to a lack of reporting oversight of operations. As a result, policies are not always informed by the frontline view of how best to operationalize. By introducing an end-to-end owner of access and scheduling management in the VHA field organization (e.g., above the VISN level), the organization can increase accountability and ensure timely implementation of needed changes. This end-to-end ownership for cross-cutting areas should be developed in the broader context of organizational changes recommended in Assessment L.

4.2.1.2 Increase Performance Management and Accountability for Access and Scheduling Performance

Today, the field is held accountable for facility performance through VISN leadership reporting up to the Deputy Undersecretary for Health for Operations and Management. There is a wide range of targets and metrics the field is held accountable for across its operations. However, if VHA is to prioritize performance on specific dimensions (e.g., access), it may need to refine and streamline its performance management systems, including operational measures, targets, and rewards, as described in detail in Assessment L.

4.2.1.3 Convene a Standing Group to Streamline the Policy Approval Process to Allow Flexibility and Responsiveness to the Field

Currently, new policies must be approved by a myriad of departments across various levels of VHA. As a result of this well-intended consensus-driven approval process, policies or policy clarifications take months or even years to approve and launch, which hampers the ability to respond to the needs of the field in an ever-changing environment. For instance, the Scheduling Directive was released in 2010, but the first clarification was not released until May 2015. An accelerated policy approval process could reduce the ability of any individual or group to prevent the policy from gaining approval. It would also significantly simplify the approval process needed for simple clarifications of existing policies that currently need to be approved by the same process as national directives.

4.2.1.4 Improve the Existing Hiring Process to Ensure Adequately Skilled Scheduler and Provider Staffing

Today, as documented by Assessment F, the hiring process for both clinical and non-clinical staff is challenging due to both national and local hiring practices. As a result, it is not atypical for a facility to go six months before replacing a vacant position. With fewer providers, clinics have fewer appointments to offer patients, which may result in their inability to meet demand. With fewer schedulers, standard practices may not be used on a daily basis and patients may have to wait longer before a scheduler can attend to their scheduling needs. By improving the hiring process for all staff, VHA can ensure it has the manpower to follow best practices scheduling processes and provide timely appointments to its patients.

4.2.1.5 Ensure Progress Against Organizational Effectiveness Recommendations Described in Assessment L

Large-scale change management efforts, such as what would be required to meaningfully improve the scheduling workflows at VHA, will require several fundamental organizational changes that go beyond scheduling. Assessment L describes these changes in detail. Specific to scheduling, VHA will also need to undergo a change management process in which clinical leadership and providers are engaged in the scheduling transformation. Given the number of process, system and organizational changes suggested by this assessment, engaging and empowering clinical leadership in the transformation effort will be critical. In our experience with scheduling/access transformations, clinical leadership engagement has been a key determinant of success in improving patient experience and increasing access in all situations.

4.2.2 Immediate Actions for Consideration

Across our recommendations, some actions should be considered for immediate implementation, while others will likely require more advanced planning and resourcing before meaningful design or implementation can begin. Recommended immediate actions against each of our cross-cutting recommendations should include:

Table 4-1. Recommendations and actions for consideration

Recommendation	Potential immediate actions
Address System Limitations to Provide Visibility Into Aggregate Appointment Supply, Alternative Measures of Wait Times, and Provider-Level Performance Data	▪ Within VHA, continue effort to clean-up clinic profiles; ensure that facility-level clinical leaders are committed to this effort ▪ Across VA and VHA, ensure that process design, budgeting and implementation/roll-out planning (including for non-systems changed required to get the full value of any new scheduling system) are progressing for MASS (assuming imminent vendor selection)
Codify Proven Scheduling Practices and Empower Clinics to Deliver a Consistent Patient Experience, Improve Appointment Utilization	▪ As part of ACAP's continued efforts on scheduling and access, – Engage clinical leadership at the facility level on the principles of provider scheduling management, supplementing the development of the clinic manager training program – Direct clinics to increase use of strategic overbooking, which does not require new resources, and provide "how to" principles to accelerate the work down of current backlog (can revisit strategy over time) – Redistribute and offer training on the VHA-developed missed opportunity predictive model to VISNs/facilities

Recommendation	Potential immediate actions
	to build awareness of the tool where it may not exist today
Streamline Scheduling Policy Implementation With Supporting Tools and Implementation Guidance; Where Possible, Utilize Technology to Support	▪ Assemble a cross-functional working group with the charge of policy approval ▪ Determine a regular process and timeline that ensures that (1) decision-making occurs in a timely manner (2) any proposed changes are accompanied by supporting implementation tools that are field-tested (3) there is a clear plan for subsequent disseminated to all relevant personnel (4) there is a mechanism for measuring impact (positive or negative) of any policy or policy changes that should be centrally addressed
Improve Scheduler Training by Sharing Local Best Practices and Increasing Experiential and on-the-job Training; Simultaneously, Minimize the Need for Training by Simplifying Policy Implementation and Improving System Functionality	▪ Building on the materials received during this assessment's national data call, ACAP should continue to codify best practice training materials examples and share at VISN/facility level
Design Scheduling Call Centers that can Provide Expanded Services for Veterans Relative to Current State.	▪ VA/VHA should clarify scope and timeline of activity for VA Call Center Taskforce as it relates to scheduling call centers ▪ Building on the materials received during this assessment's national data call, ACAP should develop recommendation on scope (scheduling services offered, clinical services covered) and size of scheduling call centers for facilities to consider

This page intentionally left blank.

5 Provider Availability

5.1 Context & Approach

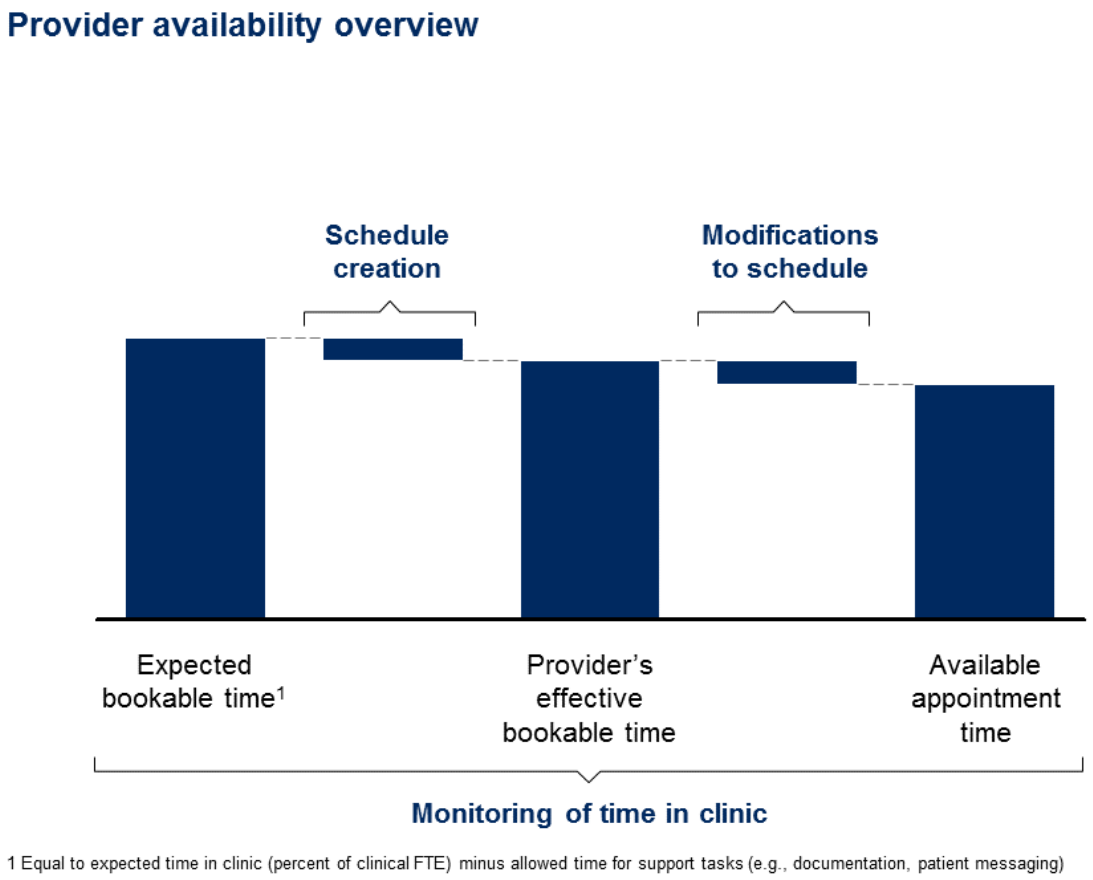
The Institute for Healthcare Improvement (IHI) describes the fundamentals of access management as consisting of two management processes: 1) monitoring appointment demand, and 2) managing appointment supply to that demand ("Measure," n.d.). In any provider setting, appointment availability can fluctuate due to several factors, including last minute clinic cancellations, vacation, leave, and other changes to schedules. These factors have a significant impact on patients when a lack of availability inhibits access or when clinic-initiated reschedules result in an additional administrative burden for patients and schedulers. According to the 2014 VHA Access Audit, the "highest scored single barrier or challenge [to timely access to care] was lack of provider slots" based on frontline staff responses ("Access Audit," 2014).

The Choice Act identified two areas to assess related to provider availability: 1) whether providers were making changes to their schedules that inhibit scheduling, and 2) whether standard booking templates[12] at each facility or clinic could improve scheduling process. To conduct this assessment, we considered the following elements (described in Figure 5-1), which can all contribute to the need for a standard template.

---

[12] A booking template refers to the basic structure of a provider's schedule, including clinic hours, appointment slot lengths, and types of appointments offered in each slot (Kumar et al., 2014).

Figure 5-1. Elements of Provider Availability



Expected bookable time is defined as the amount of time a provider should be making available for appointments based on the provider's contractually-defined clinical full-time equivalent (clinical or cFTE), a measure of a provider's time for clinical activities in total, and expected time in clinic (versus other settings of care like the operating room). When schedules are created in the scheduling system, the schedule should be created to reflect this bookable time. Any deviation from the expected bookable time that happens when schedules are created or modified can reduce the overall available appointment time. The number of available appointment slots (appointment supply) is then dependent on how the appointment time is distributed across appointment types (e.g., urgent, new, follow-up), which may also have different lengths.

VHA providers (independently licensed clinical practitioners) work with their specialty's administrative leadership (including administrative officers (AOs), service chiefs, and section chiefs)[13] to confirm the hours in which they will see patients (bookable time) and to determine the length and mix of appointments (appointment slot supply). This information is then translated into the provider's schedule through a request from the clinical administrative leadership to the IT group responsible for generating profiles in the VistA Scheduling System. The turnaround time and processes for changes can vary due to the volume of change requests and the capacity of the group who generates the profiles in the scheduling system (Choice Act site visits, interviews, 2015). The administrative leadership is ultimately responsible for making sure that providers have structured their schedules to ensure they are offering the expected level of bookable appointment time (ACAP, interviews, 2015).

---

[13] Service and section chiefs are both clinical leaders. The key difference is scope of management, as sections are a sub-component of services (e.g., Orthopedic Surgery is a section underneath the Surgery service).

What is unique to VHA is that a provider's schedule is often spread across multiple "clinic profiles," another term for any individual schedule that a provider maintains for specific appointment types. Several important terms and definitions related to clinic profiles will be used frequently throughout the rest of this section. These terms include:

- **Clinic profile or profile**: One of several individual schedules a provider might be required to use, which combined together form his or her full schedule. Providers may have multiple profiles to differentiate appointment types by specialty, type of care, location, hours, and length of appointment (ACAP, interviews, 2015; Brandenberg et al, 2015). VHA policy requires separate profiles for each:
    - **Stop code**: Stop codes, a VHA-specific identifier used to track outpatient workload, serve as the building blocks for VistA Scheduling System. A profile requires a unique stop code so that completed appointments can be counted consistently across the facility and VA system. For the purpose of capturing workload, only one stop code can be used per profile (VHA Directive 1731, 2013). Examples include 409 – Orthopedic Surgery; 306 – Diabetes; 322 – Women's Primary Care.
    - **Standard length clinic day**: An individual profile can have a daily clinic length of no more than eight hours.
    - **Single location per profile**: An individual profile can have only one location per profile.
    - **Identical base time unit**: An individual profile can have only one base unit of time[14]
- **Overlapping profiles:** If a provider's profiles are mutually exclusive (non-overlapping), then they can be summed to determine accurate provider appointment supply; however, if providers have appointment availability within different profiles at the same time, then profiles will overlap, which can result in overestimation of true supply.
- **Schedule:** Aggregation of a provider's availability across all clinic profiles.

In addition to definitions, it is important to understand that primary and specialty care operate under different working models; this affects both how profiles are created and how productivity is monitored. Primary care providers manage a given number (or "panel") of patients in a team-based model known as Patient-Aligned Care Teams (PACT). National guidelines govern panel size, as well as access and quality outcomes (VHA Handbook 1101.10, 2014). It should be noted that a new primary care guide for profile creation was released in 2015, but was not in time for its impact to be observed on our site visits (Choice Act site visits, interviews, 2015). In contrast, specialty care providers generally are not responsible for panels of patients, but rather treat patients with specific problems for a limited period of time. In both cases, however, the set-up and management of clinic profiles is an important component of patient access.

---

[14] The base unit is the minimum bookable amount of time (15 minutes, 20 minutes and 30 minutes) and must be established for each clinic. Only multiples of the base unit can be booked within the same profile (e.g., a 15 minute visit and a 40 minute visit cannot be booked in the same profile, whereas a 15 minute and a 30 minute visit can) (ACAP, interview, January 8, 2015; SCS, 2015).

To understand these elements in detail, we relied on several specific data sources, including:[15]

- Interviews at 24 VAMCs and 23 CBOCs with 109 providers (39 percent primary care, 42 percent specialty care, 18 percent mental health care), 17 chiefs of staff, 111 clinic administrators[16] (35 percent primary care, 26 percent specialty care, 14 percent mental health care, 12 percent lab/radiology, 11 percent OR/procedure suite, 3 percent multiple care types), separate group interview discussions with approximately ten schedulers and ten clinic managers at each VAMC visited
- National survey of 1,054 providers from 111 VAMCs and 173 CBOCs
- National data call responded to by 617 clinics across 102 VAMCs focusing on provider policies
- Clinic Access Index data for the 25 VAMCs that were visited as part of this assessment's site visits, including metrics such as the ratio of new to existing patients seen and reasons for cancellations
- Analysis of Corporate Data Warehouse (CDW) appointment-level data from 152 out of 152 VAMCs and 811 of 819 CBOCs, including 5,644 total clinics, over seven-month timeframe in 2014
- Manual review of provider schedules and comparison to time-in-clinic for two specialties at one VAMC; 15 physicians and 12 profiles over a six-month timeframe in 2014-15

5.2 Findings

5.2.1 VHA Lacks an Understanding of Aggregate and Provider-Level Appointment Supply Relative to Demand Due to System Design Constraints

According to the IHI, "the foundation of improved access scheduling is the matching of supply and demand on a daily, weekly, and monthly basis. This work requires a very good understanding of demand and supply" ("Balance," n.d.). Senior leaders at Kaiser Permanente, a leading integrated provider system, also assert that an access transformation can only be accomplished with a quantitative and disciplined approach to understanding appointment supply and demand (Kaiser interview, 2015). Mayo Clinic, Seattle Children's Hospital, and other private sector health systems similarly depend on an understanding of appointment supply and demand to achieve access improvements (Brandenburg et al., 2015). This capability is important when considering potential improvements to scheduling and to timely access to care.

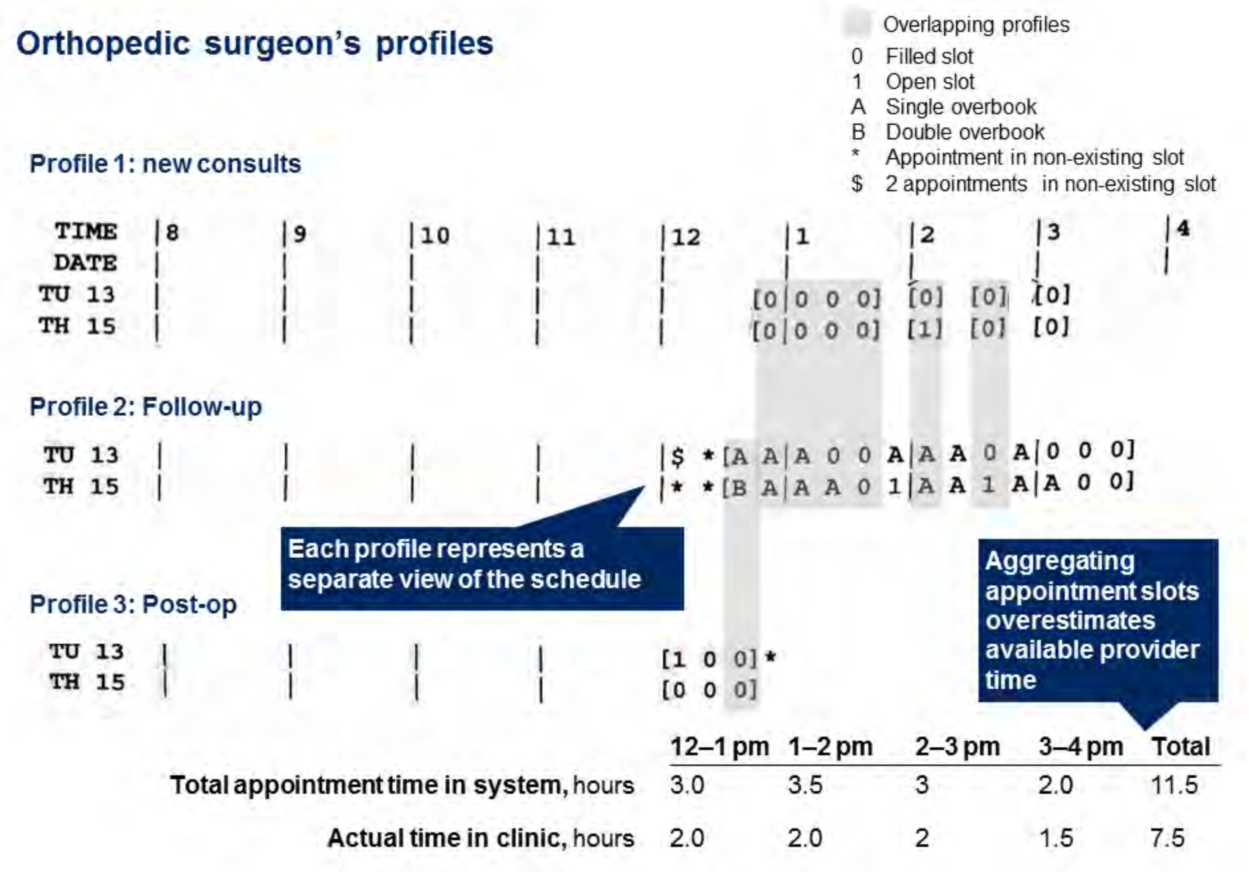
---

[15] For detailed methodology on data sources, clinics chosen for analysis and time frames of data, see Appendix B

[16] Administrative officers (AOs), nurse managers and other clinic administrators

Because of shortcomings in the current VistA systems, VHA appears to have limited insight into provider availability for outpatient services ("Access Audit," 2014), and limited ability to assess the extent to which a shortage of providers or inefficient use of current capacity are contributing to its access challenges. Much of the problem appears to be driven by choices in data capture as well as centralized reporting requirements that can result in the multiple, overlapping provider profiles described in the context. Due to this, VHA does not get a true picture of the provider's available appointment supply because the data cannot simply be aggregated.[17] To see what this means in real life, consider Figure 5.2.

Figure 5-2. Actual Orthopedic Surgeon's Profiles



Orthopedic surgeon's profiles

▨	Overlapping profiles
0	Filled slot
1	Open slot
A	Single overbook
B	Double overbook
*	Appointment in non-existing slot
$	2 appointments in non-existing slot

Profile 1: new consults

```
 TIME  |8      |9      |10     |11     |12     |1           |2         |3       |4
 DATE  |       |       |       |       |       |            |          |        |
TU 13  |       |       |       |       |       [0|0  0  0]  [0]  [0]  [0]
TH 15  |       |       |       |       |       [0|0  0  0]  [1]  [0]  [0]
```

Profile 2: Follow-up

```
TU 13  |       |       |       |       |$  *[A  A|A  0  0  A|A  A  0  A|0  0  0]
TH 15  |       |       |       |       |*  *[B  A|A  A  0  1|A  A  1  A|A  0  0]
```

Each profile represents a separate view of the schedule

Profile 3: Post-op

```
TU 13  |       |       |       |       [1  0  0]*
TH 15  |       |       |       |       [0  0  0]
```

Aggregating appointment slots overestimates available provider time

	12–1 pm	1–2 pm	2–3 pm	3–4 pm	Total
Total appointment time in system, hours	3.0	3.5	3	2.0	11.5
Actual time in clinic, hours	2.0	2.0	2	1.5	7.5

Figure 5-2 shows an orthopedic surgeon's three outpatient clinic profiles – new, follow-up and post-op – for January 13 and 15, 2015. This figure shows that while the physician is only in clinic for 7.5 hours over the course of the two days, the profiles suggest 11.5 hours of appointments were made available for booking. These overlapping slots represent a 53 percent artificial increase in appointment supply. These profiles were provided by a Surgery AO from a medium-sized, high complexity VAMC. Key: 0 = filled slot; 1 = open slot; A = single overbook; B = double overbook; * = patient booked outside a clinic's regular hours; $ = two patients booked outside a clinic's regular hours. Source: site visit VAMC, 2015.

---

[17] This is a well-known issue to facility and VHA central office leadership (ACAP, interviews, 2015); see section 5.3.2 of this report.

The figure shows an orthopedic surgeon's three clinic profiles or schedules – new, follow-up and post-operative – in a medium-sized, high complexity VAMC for January 13 and 15, 2015. In reality, a scheduler could not view these multiple, overlapping profiles at the same time on their computer screen; these are consolidated into one view for the purpose of this example. While the physician is actually in the clinic for 7.5 hours over the course of the two days, the profiles suggest 11.5 hours of appointments were made available for booking, suggesting an inaccurate 53 percent "increase" in appointment supply.

Three primary data sources exist for understanding appointment-level information at VHA: the Corporate Data Warehouse (CDW), which houses retrospective appointment data and is limited to booked appointments,[18] the Clinic Access Index report, which, along with the Clinic Utilization Statistical Summary report, shows appointment slots and utilization; and provider schedules. Unfortunately, none of these reports provides accurate visibility into total appointment supply given the issue of overlapping profiles. The Clinic Access Index, for instance, while meant to provide a way to understand provider availability for appointments and clinic-level utilization, aggregates data from multiple profiles, which results in inaccurate numbers being reported if any profiles overlap. According to interviews with 115 AOs and clinic administrators during site visits, the only way to accurately assess appointment supply is to manually review schedules at the provider level, which is a time-consuming task that appears to be performed at fewer than five percent of VAMCs and CBOCs. Interviews with VHA Central Office leaders confirmed this estimate (VHA Central Office, interviews, 2015).

5.2.2 VHA Does not Utilize Demand Analysis and Forecasting to Develop Schedules that Match Patient Needs

Health systems can measure and forecast patient demand for appointments on both a short- and long-term basis. True appointment demand represents "the total number of requests for appointments received on any given day from both internal (e.g., provider requests for return visits) and external (new patient referrals) sources" ("Measure," n.d.). While long-term demand modeling enables workforce planning (e.g., hiring of providers), the IHI recommends health systems use short-term demand forecasting in addition to develop provider schedules ("Measure," n.d.). Specifically, the IHI recommends forecasting on a daily, weekly, and seasonal basis[19] ("Measure," n.d.). Further, a 2015 Institute of Medicine (IOM) report identified the need for “vigilant and dynamic management” to “make on-the-fly adjustments when events happen that upset the [supply-demand] balance” (Brandenburg et al., 2015).

---

[18] Any appointment slots that go unused are not captured. VA does use the Veteran Equitable Resource Allocation (VERA) model, which uses historical utilization data to allocate VA funding annually. However, this model measures utilization (e.g., visits), not appointment supply.

[19] Currently, VA forecasts long-term demand for budget request purposes using a complex model.

VHA does not consistently use short-term demand analysis and forecasting to develop schedules that match patient needs. VHA’s ability to build schedules around demand forecasts is limited in that its demand models do not provide prospective demand predictions by type of appointment (e.g., new, follow-up, pre-operative). For instance, VHA utilizes the Enrollee Health Care Projection Model (EHCPM), which is maintained and operated by private contractor Milliman, Inc. (Harris et al., 2008). This tool enables the forecasting of future demand in terms of physician RVUs by specialty at the administrative parent facility level, which refers to a medical center and all facilities under the same leadership (link to Assessment B). However, the EHCPM does not predict mix of appointments, which prevents it from being used to design schedules as is best practice (Gupta and Denton, 2007). VHA’s other demand models, such as the Specialty Productivity Access Report and Quadrant (SPARQ) Tool, similarly do not enable prospective demand modeling (“Productivity,” 2015).

High-performing private health systems monitor demand closely. For example, Kaiser Permanente employs a dedicated analytics team to monitor and compare expected appointment supply to forecast demand by appointment type;[20] then the system’s clinical and administrative leaders review these supply and demand data on a weekly basis to identify potential gaps and to increase supply[21] if needed (Kaiser interview, 2015). Cleveland Clinic reduced wait times from 14 to seven days and added 100,000 visits a year through the use of supply-demand analytics and prediction tools (“Creating,” n.d.). University of Michigan employed a similar strategy of closely matching capacity of providers to predicted demand for services from various patient populations to improve access performance (Nolan et al., 1996).

5.2.3 VHA Does not Develop Schedules to Ensure Optimal Appointment Supply or Mix (For Example, New, Urgent, Follow-Up)

5.2.3.1 Provider Schedules may be Created Without Clear Linkages to Assigned Clinic Time

The IHI suggests that provider schedules be set to match expected cFTE (“Measure,” n.d.).[22] By explicitly measuring available appointment time and comparing it to time expected in clinic, clinics can identify opportunities to increase patient access without adding providers.

---

[20] Based on historical demand, seasonality, membership changes and other inputs

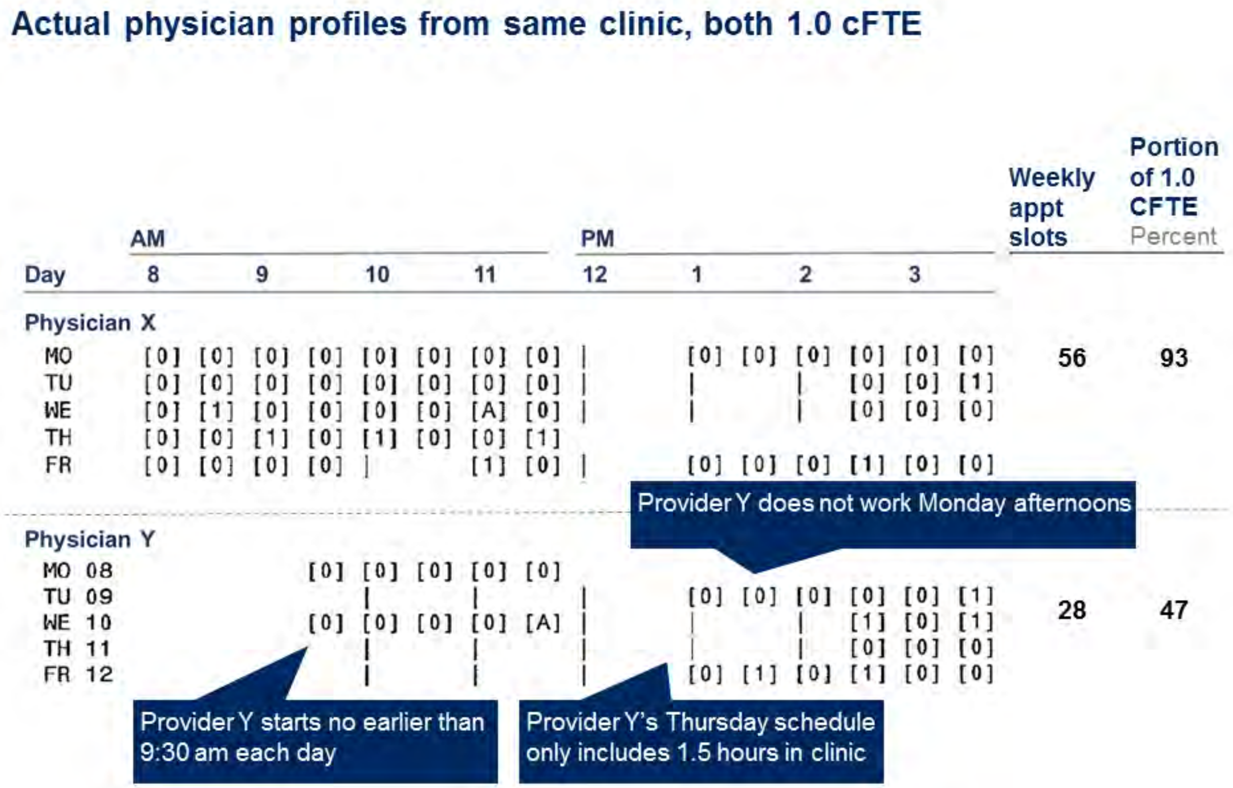
[21] Short-term appointment supply can be increased by decreasing non-clinical time, denying non-essential leave and shifting focus to new patient appointments.

[22] For the purpose of this report, “schedulable time” is referred to as a percentage of a clinical full-time employee (FTE). In other words, for each provider, there is a specified amount of time to be spent at the VHA facility. Of that time, a certain amount is allocated to seeing patients (often called “clinical time” and defined as a percentage of clinical or cFTE). Of that clinical time, a portion is allocated to the outpatient clinic setting for direct patient care (% cFTE); this is the focus of the report.

Across VHA facilities, schedules are developed at a local level for each provider with limited central guidance on translating cFTE to expectations of bookable time (Office of Productivity, Efficiency & Staffing, interviews, 2015). Of the 617 clinics responding from 102 VAMCs to our national data call, only 8 percent reported receiving national guidance on how long their clinic sessions should be, and 31 percent received no guidance at all (Assessment E national data call, 2015). Due to a number of factors, including this lack of central guidance on the number of expected bookable hours in direct patient care based on assigned outpatient clinic time, some provider profiles are structured to reflect less bookable time than their cFTE. Consequently, fewer appointments than expected may have been available.

For example, Figure 5-3 shows two full-time physician profiles from the same outpatient clinic for the week of Sept 8-12, 2014.

Figure 5-3. Actual Physician Profiles From Same Clinic, Both Intended to be 1.0 cFTE



Actual physician profiles from same clinic, both 1.0 cFTE

```
                                                                         Weekly   Portion
                                                                         appt     of 1.0
        AM                                 PM                            slots    CFTE
Day     8       9       10      11         12     1      2      3                 Percent

Physician X
  MO    [0] [0] [0] [0] [0] [0] [0] [0] |      [0] [0] [0] [0] [0] [0]    56       93
  TU    [0] [0] [0] [0] [0] [0] [0] [0] |      |       |   [0] [0] [1]
  WE    [0] [1] [0] [0] [0] [0] [A] [0] |      |       |   [0] [0] [0]
  TH    [0] [0] [1] [0] [1] [0] [0] [1]
  FR    [0] [0] [0] [0] |       [1] [0] |      [0] [0] [0] [1] [0] [0]

Physician Y
  MO 08             [0] [0] [0] [0] [0]
  TU 09                 |       |       |      [0] [0] [0] [0] [0] [1]
  WE 10             [0] [0] [0] [0] [A] |      |       |   [1] [0] [1]    28       47
  TH 11                 |       |       |      |       |   [0] [0] [0]
  FR 12                 |       |       |      [0] [1] [0] [1] [0] [0]
```

Provider Y does not work Monday afternoons

Provider Y starts no earlier than 9:30 am each day

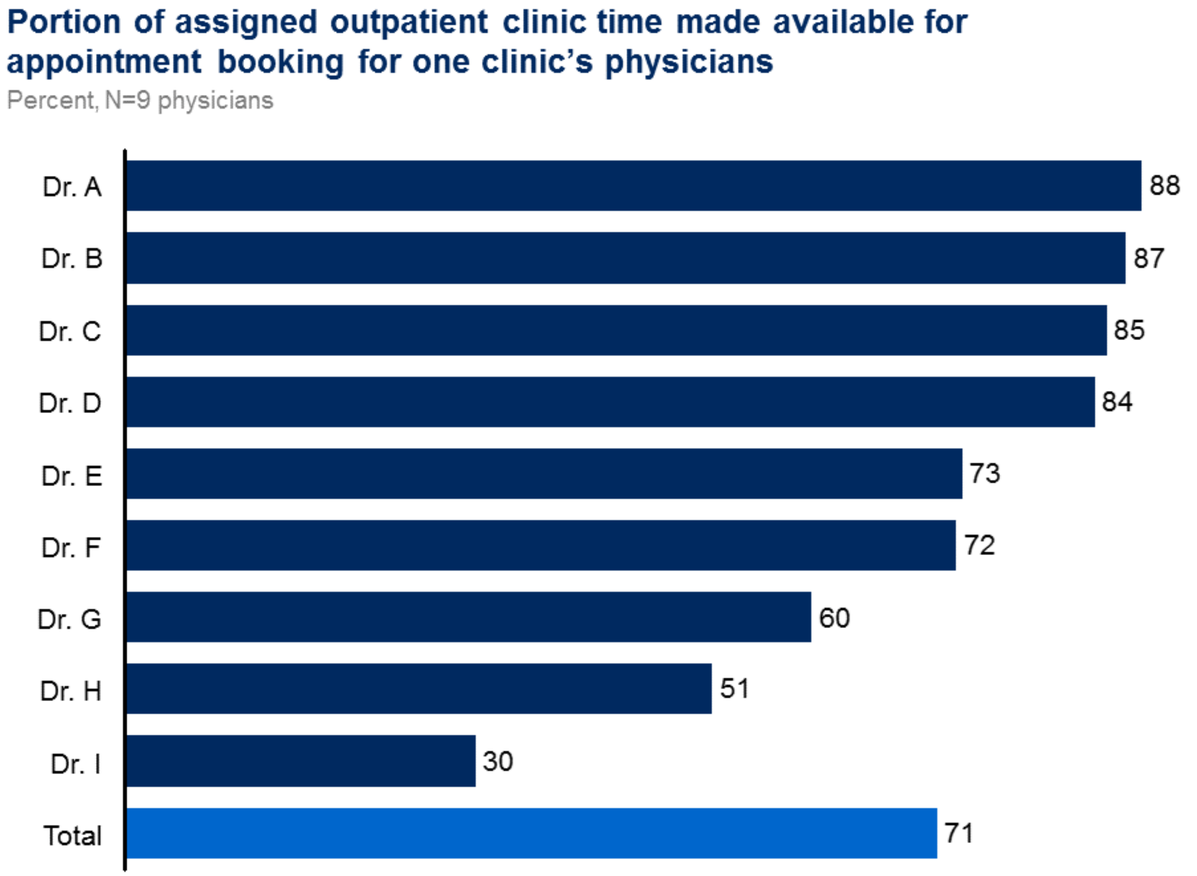
Provider Y's Thursday schedule only includes 1.5 hours in clinic

Figure 5-3 shows two actual physician profiles provided by one facility's Mental Health service for the week of Sept 8-12, 2014. The figure shows that one physician's standard profile provided twice as many 30-minute appointment slots per week compared to another physician's (56 slots compared to 28) and that neither is mapped fully to expected bookable time. This analysis, based on guidance from the AO, assumes 35 hours of bookable appointment time per week, with one hour per day for documentation, phone calls, and other administrative work related to direct patient care. Key: 0 = filled slot; 1 = open slot; A = single overbook. Source: site visit VAMC, 2015.

The clinic's AO confirmed that each provider in Figure 5-3 was one full cFTE at VHA, but one provider was scheduled to provide twice as many appointments per week (56 slots compared to 28). These slot availabilities represent 93 percent and 47 percent of expected appointment supply, respectively, based on 35 hours per week of bookable time[23] with one hour per day for documentation, phone calls, and other patient-related administrative work.[24]

Figure 5-4 demonstrates similar variability across the rest of this clinic over a six month period.

Figure 5-4. Portion of Assigned Outpatient Clinic Time Made Available For Appointment, Sept 2014 – Feb 2015



The amount of expected bookable time assumes providers work 35 hours per week, with 0.5 hours per session, two weeks of vacation, and seven holidays over the six-month period, Sept

---

[23] Based on maximum of eight hours allowed in each clinic profile per day with one hour for lunch (Choice Act site visit interviews, 2015).

[24] AO provided all labor information and general expectations for bookable time and confirmed neither of the two physicians has other administrative, research or clinical duties filling the identified time gaps.

2014 – Feb 2015. Due to limitations in VHA provider time allocation data, it is not possible to understand how providers' unscheduled clinic time is being spent, so these individuals may be engaging in patient care activities (such as secure messaging) that is not captured. Source: Site visit VAMC, 2015.

Due to the manual nature of collecting FTE information and all profiles over a six-month period for every physician, only two of eight clinics asked were able to fulfill our request for this information, and representatives from other clinics reported that they could not comply given the amount of time this task would take. The time-consuming nature of this analysis given the multiple profiles clearly reduces the level of transparency of available bookable time to administrators. This can result in some providers making less time available for booking relative to their peers and should be explored more broadly across VHA given that the above analysis is an example of one clinic.

That said, the variability exhibited in this example is consistent with variability observed in more than ten health systems in which we have participated in scheduling/access transformations. Our experience has shown that even well-performing systems can generate 5-10 percent additional appointment capacity from improved matching of provider clinic schedules to assigned provider time. The constraints of other resources (such as exam rooms and non-clinical staff) would also need to be explored to validate this opportunity.

5.2.3.2 Lack of National Standards Regarding Appointment Lengths may Contribute to Patient Volume Variability from Provider to Provider

The IHI recommends that appointment slots accurately match expected appointment length for each sub-specialty ("Reduce," n.d.). Except for primary care, which has examined appointment slot lengths nationally and provided system-wide guidance on precise lengths for different appointment types, slot length determination is left to individual providers and their local clinical leadership. Of the 617 clinics across 102 VAMCs included in the data call, 67 percent had policies in place regarding appointment length, with the large majority of these policies (78 percent) developed at the service or section level (Assessment E national data call, 2015). In about 32 percent of cases, clinics reported that no policy existed at all, and that appointment length was left entirely up to the provider.

An analysis of seven months of established patient follow-up appointment data from 2014 found significant variations at the specific stop code (outpatient service identifier) level as seen in the following two Figures 5-5 and 5-6.

Figure 5-5. Follow-up Appointment Slot Length by Stop Code, Jan – July 2014 n = 152 VAMCs, 811 CBOCs

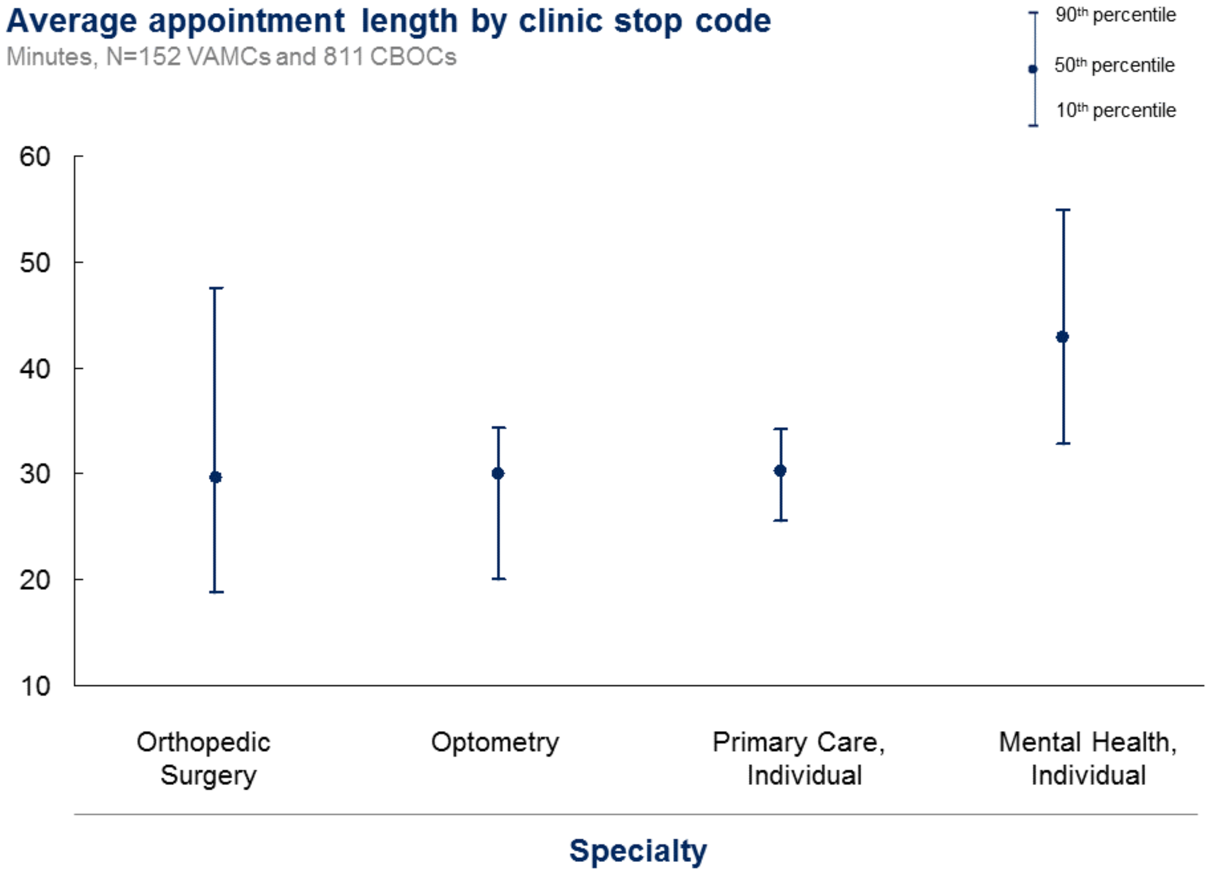


Figure 5-5 shows the average lengths of follow-up appointment for select top codes. Average appointment length varies significantly within the same specialties across facilities. This data comes from Corporate Data Warehouse (CDW) data across 152 VAMCs and 811 CBOCs for seven months in 2014. Source: CDW, 2014.

As stop codes are identifiers that are intended to be used consistently across VHA for workload capture and accounting purposes, this type of variation is not necessarily expected. For example, across 338 facilities offering optometry services for seven months in 2014, average time scheduled for follow-up appointments for one stop code ranged from 15 to 61 minutes (10th percentile = 20 minutes, 90th percentile = 34 minutes). While an individual patient may take more or less time to be seen, these slot lengths represent the average scheduled appointment length for all of a clinic's visits. If the upper end constitutes an inefficient use of time, fewer patients would be seen, thus reducing overall access. Some of the variation in this analysis may be the result of visit types beyond "new" and "established," as the stop code categorization did not provide this level of detail. Further, primary stop codes do not enable analysis by provider type (such as physicians, mid-level providers and sub-specialties). This can also have an effect on appointment length as can in-clinic procedures/testing. However, given the variability seen even in specialties such as optometry that have less inherent clinical variability, it is likely that appointment length represents an opportunity.

In order to further test the level of variation, we measured the average appointment length for each clinic within Optometry (stop code 408) for follow-up appointments.

Figure 5-6. Average Follow-up Appointment Slot Length for Optometry, Stop Code 408

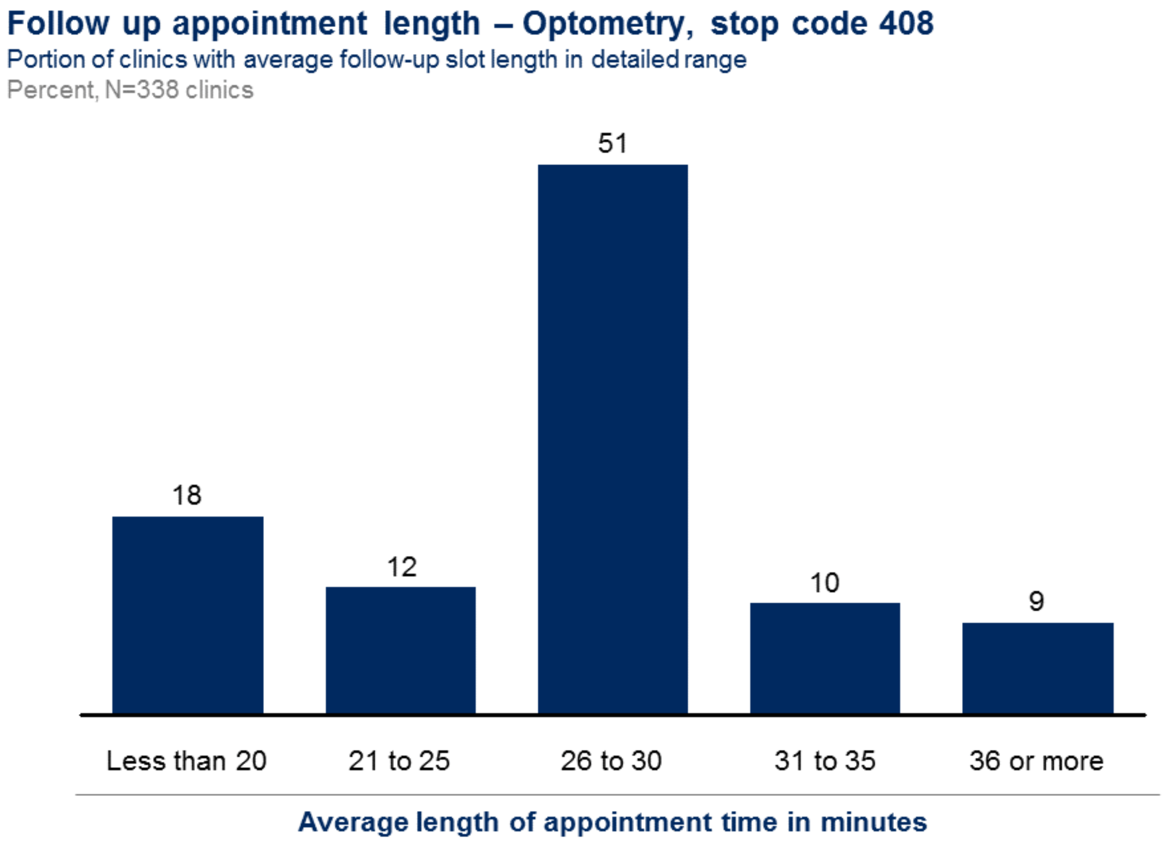


Figure 5-6 shows the distribution of average follow-up visit appointment slot length for Optometry, stop code 408. While most appointments (51 percent) lasted on average 26 to 30 minutes, 18 percent lasted 20 minutes or less and 9 percent lasted 36 minutes or more. This data comes from seven months of Corporate Data Warehouse appointment-level data in 2014. Source: CDW, 2014.

This analysis, which included multiple provider types, found a wide range of average clinic appointment slot lengths. While most appointments (81 percent) were scheduled for an average of 30 minutes or less, 10 percent were scheduled for 31-35 minutes and 9 percent for 36 minutes or more. This range represents a potentially large difference in the number of patients able to be seen. For instance, if providers could reduce appointment lengths from 40 to 30 minute average without impacting quality and service, they could see three to four more patients a day,[25] effectively increasing capacity by a third. The finding that over 80 percent of other providers are already seeing patients within this shorter time period suggests this could be done without compromising patient care.

While there are several limitations to this analysis, other integrated provider systems including the Henry Ford Health System[26] provide guidance on appointment length at the system level. In part by implementing standard appointment lengths across providers, Henry Ford was able to reduce third next available appointment wait time, a commonly used industry metric, by 31 percent over two years (McCarthy et al., 2009). Systems working to standardize appointments lengths should also consider how clinical workflows (ability to move patients through the clinic) and individual provider capabilities (e.g., new versus experienced provider) should factor into standards.

For specialty care, the standardization of appointment lengths may be more difficult given the variability between and within specialties (Gupta and Denton, 2007). However, a sustained effort by one VAMC's department of orthopedic surgery shows that it is possible.

VHA high-performance example: Palo Alto VAMC orthopedics

In 2013, Palo Alto VAMC orthopedics was experiencing long wait times and frequent overbooking that resulted in long in-clinic waits to be seen (Choice Act Site visits, interviews, 2015). Two advanced-practitioners worked to address these issues in part by overhauling provider schedules. They measured throughput for each provider in the clinic and then calculated average visit length by appointment type. On that basis, they established standard appointment lengths for all their clinic providers. For example, they found that follow-up visits consistently lasted about 20 minutes, even though some providers had 15- minute slots and others had 30-minute slots. So they changed the system to allow 20-minute slots, reducing the need for overbooking and enabling providers to perform documentation in real-time. In conjunction with other efforts, this schedule overhaul cut average patient wait times from six weeks to less than one. In-clinic wait times improved because there was more accurate booking. Providers and staff also were pleased: "We're a lot happier with the flow of clinics," one said, "because they start and end on time, which never used to happen." Most importantly, Veterans themselves were more satisfied; patient complaints decreased from five per week to about one a month (Choice Act Site visits, interviews, 2015).

5.2.3.3 Appointment Mix May not Match Demand

Across VHA, performance on patient access metrics is generally worse for new patients than for existing ones. According to VHA, approximately 30 percent of new patients have wait times beyond VHA's access standard, compared to fewer than five percent of established patients

---

[25] Assuming seven hours of bookable appointment time

[26] Henry Ford is a vertically integrated health care system that provides health insurance and health care delivery. It employs over 1,100 physicians who staff its 26 outpatient medical centers ("Henry Ford Facts and Statistics," 2015).

("Strategic," 2014). Multiple factors could be driving this, including the consult process, as discussed in detail in Scheduling Process Section 6. The way scheduling profiles are set up may contribute to these differences, specifically through appointment mix—that is, the relative number of appointment types seen by a provider. Establishing similar ratios of slots to demand (for example, new patient slots to new patient demand, follow-up slots to established patient demand), ensures more consistent access across patient types.

Differences in appointment mix are especially important within specialty care, where patients often have more acute needs. This requires specialists to determine when they can return their established patients back to the management of their primary care providers so the specialists can accommodate new patients. Within primary care, the mix is more relevant to assess at the team rather than the individual provider level, since the PACT model relies on a unit of providers and support staff working together to treat patients.

Appointment mix is generally set at the provider- or clinic-level, even within Primary Care, for which the reservation of some appointment slots for same-day appointments is mandated. Determining appointment mix at the local level is consistent with the practices of private integrated providers. The difference is that compared to the private sector, VHA has limited ability to accurately measure true supply or utilization of appointments by type due to providers' multiple profiles. Moreover, gaps in accountability and monitoring mean that VHA management may not notice mismatches between patient demand and available slots by appointment type.

To understand whether appointment mix was an issue within VHA, recognizing data limitations, we did an analysis of six months of Clinic Access Index reports for four stop codes[27] in 25 VAMCs. For specialty care, the analysis found a wide range in the ratios of established patients to new patients across 25 clinics within each specialty (Orthopedic Surgery: 0.4 to 7.6; Dermatology: 1.6 to 6.1). A number of factors outside of the control of the clinics could have contributed to this wide range in mixes, including differences in demand across new and established patients. However, schedule set-up, provider behavior, and appointment mix monitoring are important enablers for consistent patient access. For instance, if there are too few new patient slots in a provider's schedule, established patients could fill up the schedule, reducing new patient access to specialty care.

To identify such mismatches, Kaiser Permanente measures its appointment supply and demand by appointment type and adjusts provider schedules accordingly (Kaiser interview, 2015). Regular monitoring enables Kaiser Permanente to anticipate mismatches and adapt appropriately, whether by staggering provider schedules, shifting same-day slots to certain hours, or increasing the percentage of new patient appointments. Other systems incorporate patient preferences, such as demand for same-day appointment slots by time of day and day of week, into demand modeling to optimize appointment mix (Gupta and Denton, 2007).

---

[27] Primary Care – Individual; Mental Health – Individual; Dermatology; Orthopedic Surgery

5.2.4 Provider Cancellation and Leave Policies are Inconsistent and Poorly Monitored

Managing cancellations by clinic, which are appointment cancellations that are initiated by the clinic, is critical because a cancelled visit can negatively impact the patient experience and also increase the workload of schedulers. An analysis of six months of appointment data in four stop codes (Orthopedic Surgery, Dermatology, Primary Care – Individual, and Mental Health – Individual) in 25 VAMCs shown in Figure 5-7 suggested significant differences in the percent of clinic visits cancelled by the clinic across our site visit VAMCs.

Figure 5-7. Rate of Appointment Cancellations by Clinic, Feb – July 2014, n = 99 Clinics Across 25 VAMCs

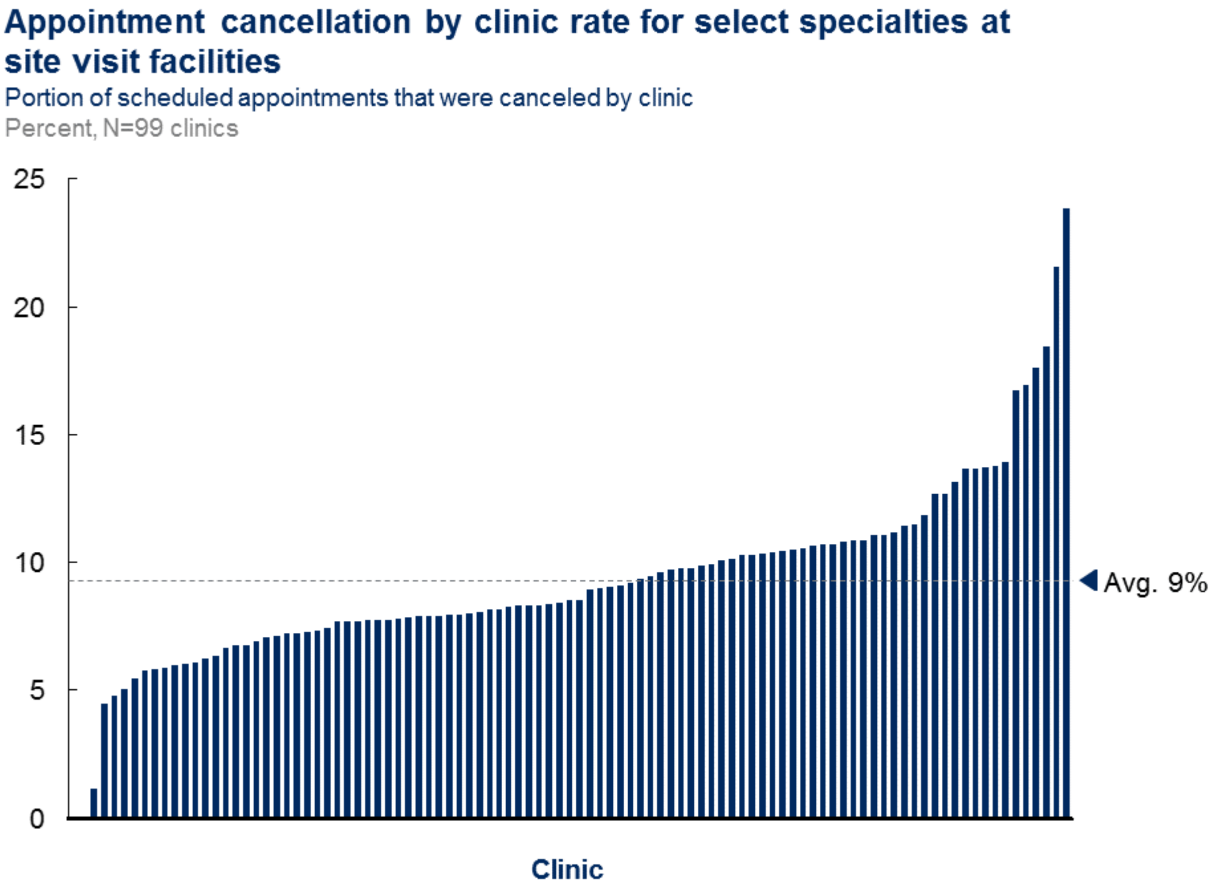


Figure 5-7 shows appointment cancellation by clinic rate for four specialties (Primary Care – Individual, Mental Health – Individual, Orthopedic Surgery, and Dermatology). Clinic cancellation rates range from near 0 percent in some clinics to 25 percent with an average of 9 percent. This analysis comes from Clinic Access Index data from 25 site visit VAMCs.
Source: Clinic Access Index reports, 2014.

This analysis suggests that clinics cancel a large number of appointments (nine percent) before the scheduled time. There is also a considerable range in performance, from next-to-none in some clinics, to up to 25 percent in others.

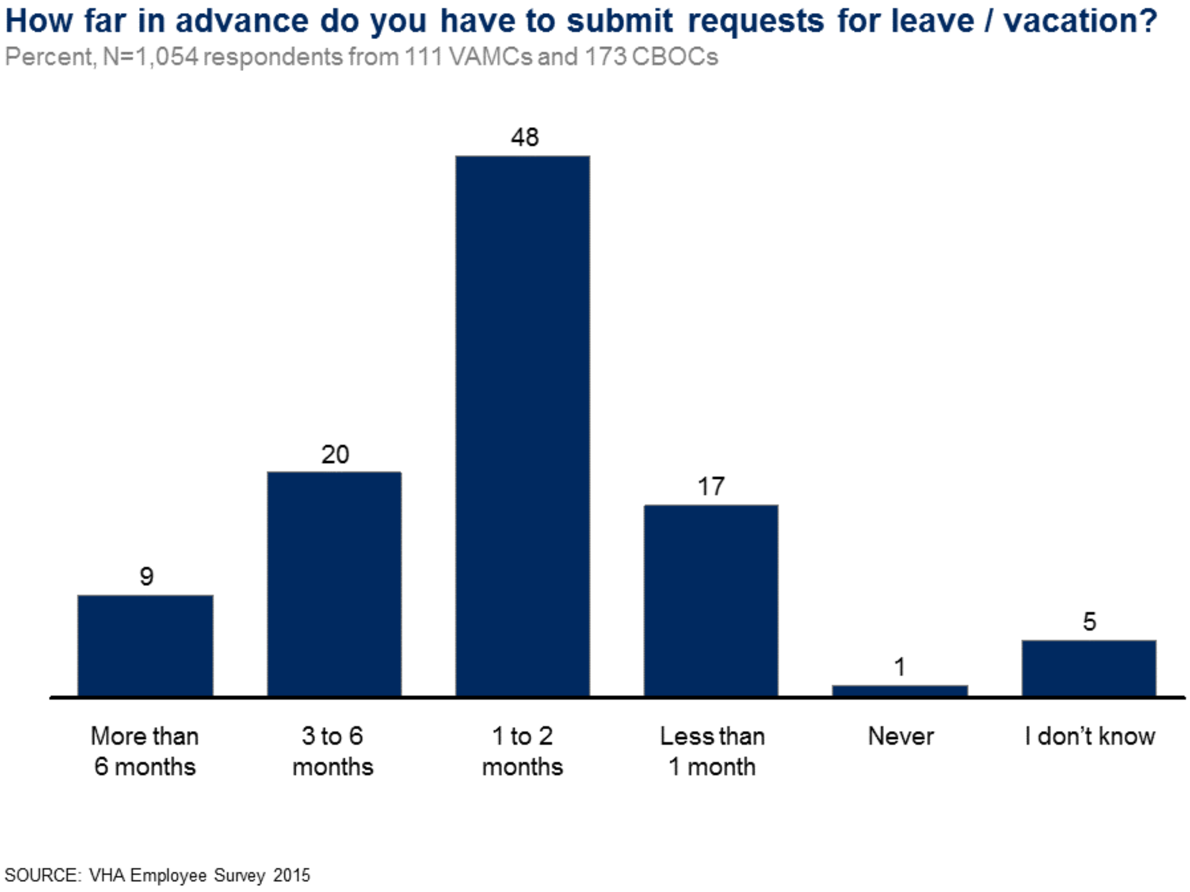
Some provider cancellation is inevitable, due to illness, deaths in the family, and other unavoidable causes. These cancellation rates do not compare favorably to industry, however, where cancellation by clinic rates within large academic medical centers have been shown to range from two to five percent (Quigley et al., 2011; Davis and Glick, 2013). Similarly, unavoidable causes of cancellation also likely would not explain the wide variation observed in the analysis. This analysis, while admittedly limited, suggests that there is considerable room for improvement and cause for management attention.

Schedulers also reported that clinic cancellations can be very inconvenient for patients, as patients may have already coordinated other appointments or transportation to coincide with the original appointment, as well as delay care: “We try to reschedule patients close to the date of their original appointment, but sometimes it’s just not possible, so they may have to wait an extra week or two,” reported one scheduler. Rescheduling can also significantly impact scheduler workload. For instance, at one clinic our team visited, there were two schedulers that worked full-time on rescheduling cancelled clinic appointments, many of which were reportedly cancelled by the clinic (Choice Act site visits, interviews, 2015).

Potential reasons for cancellations, according to the schedulers and administrators with whom we spoke, include misalignment of leave with scheduling (meaning that a provider takes leave during a period of time that was already scheduled with patients), poor communication of approved provider leave from clinical administrative leadership to the clinic, limited enforcement of leave policy requiring advanced notice of absences, and scheduler error.

With respect to the misalignment of leave requests with how far in advance patients can schedule care, follow-up appointments can be booked up to 90 days in advance (VHA Directive 2010-027), which often exceeds the amount of notice providers are required to give for leave requests. Required leave notice in the clinics we visited varied from 30 days to six months to “as early as possible” (Choice Act site visits, interviews, 2015). Our national survey of providers supported this finding, as can be seen in Figure 5-8.

Figure 5-8. How Far in Advance do you have to Submit Requests for Leave/Vacation?
n = 1,054 Respondents from 111 VAMCs and 173 CBOCs



SOURCE: VHA Employee Survey 2015

Figure 5-8 shows the required amount of notice for leave/vacation reported by providers in our national survey. Amount of required notice varies widely, with only 29 percent reporting minimum notice of at least three months. This data comes from our national survey of 1,054 providers from 111 VAMCs and 173 CBOCs. Source: Assessment E VHA employee survey, 2015.

This analysis shows that the majority of clinics (71 percent) do not require providers to submit leave requests as far out as appointments can be booked. Only 29 percent of clinics require providers to give at least three months' notice for leave and vacation. As a result, while providers may be following their specific clinics' leave policies, appointment slots may already be booked for that time period. Providers then may need to cancel and reschedule patient appointments, leading to potential patient inconvenience and scheduler rework.

Additionally, the process for communicating leave to schedulers is also inconsistent. Some clinic administrators, after receiving leave requests, ensured the providers' profiles were updated in VistA by "closing" those periods for booking. Other clinic administrators did not actually close the profile, relying instead on letting schedulers know that the requested leave slots should not be booked.

Third, the existence and enforcement of cancellation policies also varies by clinic and facility. Many facilities reported having official cancellation policies, although individuals responsible for enforcement varied. Over 87 percent of the 617 clinics across 102 VAMCs responding to our national data call reported the existence of a formal cancellation policy, with the large majority (90 percent) of these policies created at the local service or section/specialty level. Policy enforcement also reportedly varies, with 59 percent enforced by the service chief, 22 percent by the section/specialty chief, and 18 percent by other individuals (such as AOs).

While most clinics have cancellation policies in place, in our group interviews with schedulers and administrators, no groups considered leave and cancellation policy to be strictly and consistently enforced. Instead, these policies were regarded as guidelines rather than rules. As one group interview with clinic administrators summarized, "Even if there's a policy in place [against taking leave on short notice], it is just words on paper if no one enforces it. The Chief of Staff approves every single clinic cancellation request." This was echoed by providers:

- "We're supposed to get in leave requests at least 30 days ahead of time, but it's not something that's strictly enforced."
- "I think the policy technically is 30 days, but it's more of a suggestion than a rule."
- "We are supposed to provide at least 90 days' notice, but I don't think requests are denied if they're less than that. Things come up."

An in-depth analysis we performed of the profiles of nine physicians at one mental health clinic from September 2014 to February 2015 at a facility that requires leave requests to be made 90 days in advance found that cancellation rates were significantly higher on Fridays. If these cancellations were based on unavoidable events such as sickness, one would expect rates of unavoidable causes to be roughly evenly distributed throughout the week, not the high incidence of Friday cancellations. Of course, this is a small sample, and this clinic may not be representative; however, the pattern suggests an area for review. AOs report that providers with cancellation issues are usually known: "It's pretty obvious which providers are cancelling a lot of their clinics." In the manual analysis, individual cancellation rates ranged from 9 to 28 percent over a six month period. At the moment, automated and centralized monitoring of provider-level cancellation rates is not possible due to VistA system limitations.[28]

These practices can be improved, as examples in the private sector demonstrate. In our interviews with integrated systems, Geisinger and Kaiser Permanente, both systems stressed the importance of having their leave policies match with their appointment booking horizons. Geisinger Health System requires all providers to submit leave requests at least 90 days in advance, and leave policies are strictly enforced (Geisinger interview, 2015). These leave requests are appropriately and consistently blocked in the scheduling system, so schedulers do not book time by mistake. Kaiser Permanente tracks and closely monitors provider cancellation rates (for any reason) at both the provider and the clinic level (Kaiser interview, 2015).

---

[28] Cancellation rates for a particular clinic profile can be monitored, but because individual providers often have multiple profiles, these would need to be manually summed; Office of Informatics and Analytics, interviews, 2015).

5.2.5 Provider-Customized Rules and Schedule Holds can Result in Unfilled Appointment Slots and Difficulty in Rotating Schedulers

Providers can also influence their schedules by superimposing additional rules and restrictions onto their standard templates for schedulers to follow. According to interviews with schedulers and clinic administrators, providers are able to add rules for schedulers that range from clinically relevant (for example, no overbooking of particular types of Mental Health visits) to provider preference-based (like no urgent patients on Fridays). According to our data call, the large majority of clinics (71 percent) do not have formal policies in place on what types of rules are acceptable. These provider rules vary significantly between providers in the same clinic. According to group interviews with schedulers, these rules are sometimes incorporated into the profiles themselves in the form of text at the bottom of the profile, whereas others are not formally documented.

While in some cases these rules may increase convenience for the provider and staff without impacting patient access, provider fill rate can be impacted when informal, undocumented provider- and clinic-specific rules result in scheduler error. These rules can also impact schedule availability in general or for a specific patient type. “We aren’t allowed scheduling urgent patients on Fridays in Dr. [omitted]’s clinic,” reported one scheduler.

The existence of provider- and clinic-specific rules was commonly raised as an issue in facilities where schedulers rotated through different clinics. As also covered in Scheduler Training Section 8, schedulers reported:

- “Switching to a new clinic is like learning how to be an MSA all over again”
- “It’s really hard to start in a new clinic because everything is different”
- “Sometimes we have to cover in unfamiliar clinics when someone’s out [on sick leave]. You feel so clueless”
- “I’m trained to be a float and in theory should be able to cover multiple clinics, but even I have trouble keeping up with all the differences”
- “When I find out I’m in a new clinic for the day, I know I’m going to fail before I even start”

These rules can increase training requirements and limit scheduler cross-coverage of clinics. Schedulers reported that learning official national scheduling policy, although complex, is relatively straightforward compared to becoming proficient at scheduling for a particular clinic, even within the same facility. Indeed, even experienced schedulers reported difficulty working in an unfamiliar clinic due to variation in practices and provider preferences, many of which are not documented, but instead must be learned (Choice Act site visits, Interviews, 2015).

The IHI recommends that all non-essential rules be eliminated, increasing the ease and consistency with which schedulers can book appointments (“Reduce Scheduling Complexity,” n.d.). Once this is done, clinics can document and/or codify remaining rules and provide schedulers with “tip sheets” to increase consistency. The removal of these restrictions, combined with other provider template design improvement and standardization, has been shown in the private sector to have significant impact. For instance, one academic medical center was able to release 10-30 percent more capacity across its clinics, without increasing the number of providers, while also improving the ease with which schedulers can move from clinic to clinic, improving overall efficiency (Kumar et al., 2014).

VHA high-performance example: Detroit VAMC

Detroit VAMC is a facility that has taken the initiative to increase availability through the codification and removal of scheduling restrictions that may have limited access. According to an administrator in Detroit, previously “we couldn’t pull in a scheduler [into an unfamiliar clinic] because they didn’t understand the [scheduling] grid.” To address this issue, this facility requires all clinics to codify any rules specific to the clinic in the VistA profiles and also to eliminate unnecessary schedule restrictions. Now schedulers can work in any clinic,[29] improving the administrator’s ability to “flex” schedulers to cover unfamiliar clinics when necessary and reducing scheduler error rates (Choice Act Site visits, interviews, 2015).

5.2.6 There is no Chain of Accountability/Ownership in Understanding and Managing Provider Availability and Schedule Design

There is no clear-cut chain of responsibility for who should monitor the areas mentioned above at the facility level. According to site visits and VHA interviews, formal monitoring of schedules is not a clearly-defined duty for anyone at the facility level and the responsibility of schedule set-up can fall to clinic administrators, AO and others, depending on the facility and organization of the clinical service/clinics. However, on monitoring time in clinic specifically, clinic administrators, nurse managers, and providers at 90 percent[30] of on-site visits reported that provider presence in clinic was observed, which could help monitor outlier behavior. Unless providers are missing significant clinic time, though, in the form of large blocks at a time, this type of monitoring may not be sensitive enough to identify gaps.

One additional reason for the general lack of monitoring and accountability is that all aspects of provider schedule management, including setting up profiles, monitoring profile changes, and monitoring overall time in clinic, are largely manual and too time-consuming for managers to do given their other clinic responsibilities. At present, there is no easy or automated way to consistently and accurately monitor provider schedules. Beyond the administrators, thirty-two percent of providers interviewed[31] reported that the creation, maintenance, and appointment booking components of VHA’s scheduling system represent a significant challenge to their daily operations. Within this group, two major issues included:

- 42 percent identified VistA’s inflexibility and long lead time to modify profiles

---

[29] All schedulers within this facility report to ward administration, which falls under newly created Chief of Clinical Operations

[30] Site visit provider interviews, N=44 of 48 respondents; site visit clinic administrators, N=37 of 42 respondents. Question was moved to Clinic Administrator interview guide mid-way through assessment due to Provider interview guide length concerns

[31] Site visit provider interviews, N=90 asked this question

- 26 percent reported difficulty in understanding their schedules due to multiple profiles

As a result of these issues, many providers have come to see scheduling within VHA as a barrier rather than a tool to improve clinic workflows. According to one provider, “I have no flexibility in my schedule, because the profiles can’t be easily changed. If I want to work longer one day or come in early, I have to go through a weeks- or months-long process. It’s a huge pain. In private practice, I could just flip a switch.”

The Choice Act Section 303 identified the need for “a role-specific clinic management training program to provide in-person, standardized education on systems and processes for health care practice management and scheduling to all appropriate employees.” (“Veterans,” 2014). The goal of the training program is to assign management of access responsibilities to a particular role within each clinic and to provide tools and processes to help perform this duty (EES, interviews, 2015). As detailed in section 5.3’s review of ongoing VHA initiatives, the scope of this role is ambitious and includes many areas of clinic management. Our site visit interviews, however, raised concerns that simply adding these duties to an existing position may prove problematic due to lack of currently available tools and time. As one AO put it, “We keep getting more and more things added to our plates, but nothing ever gets taken away” (Choice Act site visits, interviews, 2015).

5.3 Recommendations

The implication of the above findings is that current VHA providers may not be offering as many available appointment slots as they could be relative to their expected in-clinic time. Several providers in our site visit interviews suggested that one of the benefits of being within VHA was that the pressure to meet patient volume targets was more limited than what they had seen in the private sector. They also believed that this results in higher quality care as more time can theoretically be spent with each individual patient (Choice Act site visit interviews, 2015). Nevertheless, the trade-off in spending additional time with one patient is less time spent with another patient, which could affect the rate at which a clinic works down its backlog of new patients. In addition, if time is not being made available for patients in the first place due to schedule design, certain VHA providers may not be treating as many patients as they should be based on the allocation of their cFTE time to the clinic. (See Assessment G for a comparison of provider productivity and encounter volume for VHA versus industry benchmarks).

Few reports on VHA have explicitly addressed provider availability. A 2008 independent report recommended that VHA and its facilities should monitor provider productivity more closely. A 2012 OIG report similarly recommended that primary care panel sizes should be reviewed and closely maintained to ensure adequate provider workload (“Review of Veterans’ Access,” 2012). However, previous reports have not made specific recommendations on understanding and managing the full capacity of the clinics, including monitoring provider time in clinic, profile or template creation, or provider- or clinic-specific rules and schedule restrictions. (For a detailed review of these reports, see Appendix C.2.)

According to interviews with VHA leadership, a number of initiatives are underway to address some of the challenges presented above. These include:

- Efforts to improve the accountability and the training of clinic practice managers who would have responsibility for some of the activities mentioned in the Findings, including:
    - **Development of a clinic practice management model:** VHA is in the process of developing a standardized clinic practice management model for primary care, medical specialty care, surgical specialty care and mental health. According to several individuals leading this effort, the model will detail management practices, ownership, tools, and processes. The predicted scope of management is quite ambitious, covering data validation (for example, across sources such as the Clinic Access Index, Clinic Utilization Statistical Summary (CUSS), VSSC), patient experience (for example, Survey of Healthcare Experience of Patients (SHEP) monitoring), capacity management (such as provider profiles and contingency planning), backlog management (for example, EWL, consults), productivity (such as panel sizes), and clinic flow/throughput (for example, staffing, space, IT, equipment). As of the writing of this report, initiative leaders are sharing prototypes of the practice model, including expected tools and role ownership, with individual facilities for feedback, so the extent to which the above responsibilities will be included in the model is not confirmed. Importantly, these activities are planned to be carried out without any new facility hires; instead, currently existing FTEs will be designated as owners of these responsibilities at the clinic- and facility-level (ACAP, interviews, 2015).
    - **Creation of a national clinic manager training program:** Parallel to the development of the clinic practice management model, VHA is designing a national training program for individuals with clinic management responsibilities. This training will include a list of expected duties for each role as well as recommended processes and tools. This is a multi-stage initiative required by the Choice Act Section 303 that will be rolled out over the next two years, with an expected completion date of February 2017.
- Efforts to improve visibility of supply, including:
    - **Provider profile clean up and standardization via the Scheduling Clinic Standards (SCS) work group:** This 2015 internal, multi-disciplinary work group proposed VHA-wide streamlining and standardization of clinic profiles and labor mapping (“Scheduling Clinic Standards,” 2015); the establishment of specialty-wide appointment lengths for different appointment types; and a nationally-standardized vacation and clinic cancellation process. The report does not address session length or monitoring clinic time in detail. Its recommendations have been submitted to relevant VHA program offices, and the Interim Under Secretary for Health stated in June 2015 that “clinic profile standardization is under way at every site” (Clancy, 2015). Some VISNs have begun facility-level review of clinic profiles on a regular basis to reduce overlapping clinic profiles and eliminate any unused profiles (OPES, interviews, 2015; ACAP, interviews, 2015). However, this is not required by Central Office.
    - **Stop Code Council revision of stop codes:** Stop codes increase the number of profiles under which a provider might operate. An ongoing, multi-disciplinary group meets at least once a year to review stop code use, publish standard operating procedures and

eliminate unused codes (Brandenberg, et al., 2015). Over the last ten years, the number of stop codes has been reduced from over 500 to about 360.

  - **VistA Scheduling System improvements:** As discussed in detail in the Scheduling System Section 7, VistA Scheduling Enhancements (VSE) and mobile applications are two near-term scheduling improvement programs that will address some of the software ease of use issues, including the lack of a "single screen" view of a provider's schedule and multiple unintegrated waitlists. However, these solutions cannot provide aggregate and provider-level appointment supply relative to demand due to system design choices. VHA is exploring potential replacement of the current VistA Scheduling System through the Medical Appointment Scheduling System (MASS) request for proposal, which is covered in detail in the Scheduling System Section 7.

- **Efforts to increase scheduling standardization via the Primary Care profile standardization directive:** The 2015 "Primary Care Clinic Profile Standardization Guide," which was officially released after our site visits had concluded, establishes: VHA-wide standard appointment lengths (30 minutes for established patients, 60 minutes for new patients); requirement of same-day appointment slots; maximum number of clinic profiles; and use of recall and of EWL (Prentice, "Appointment Age," 2015). This directive does not address management of delinquent recall list, clinic cancellation monitoring, or recommended appointment mix. According to ACAP leadership, local facilities generally seem to be aware of and abiding by national PC guidelines on profile standardization. Other services, including surgery, are evaluating whether to develop similar appointment length recommendations at the specialty level.

If successful, these initiatives would result in more standardized appointment schedules and thus better scheduling and monitoring capabilities. Potential gaps may include:

Implementation gaps: The eventual impact of these initiatives depends on multiple factors. One potential implementation gap identified for the clinic practice management model is resourcing. Currently, despite the wide scope of access-critical responsibilities assigned to the new clinic manager roles, there is a risk that no additional individuals will be hired, and instead these responsibilities will be designated to potentially already overextended individuals, according to interviews with VHA personnel (ACAP, interviews, 2015). This lack of sufficient dedicated time may make clinic management practices difficult to implement. Similarly, without standard processes and tools to enable management across this broad scope of activities, managers may struggle to consistently implement practices. With respect to accurately addressing provider supply, the initiatives aiming to standardize profiles depend on facility leadership and sufficient local facility IT support to manage profile clean-up, two success factors that we did not assess. With respect to provider cancellations, while the SCS work group has recommended nationally-standardized leave and clinic cancellation policies, there may be risk that these recommendations will not be adopted ("Scheduling Clinic Standards," 2015).

Scope gaps: While these initiatives will likely result in more streamlined schedules and more accurate aggregate reporting, there is a risk that several issues may not be addressed. First, cleaning up existing profiles does not address the root causes of multiple profiles, specifically the underlying system design constraints that have resulted in the proliferation of clinic profiles and limit the ability to account for and manage appointment supply. Until there is a one-to-one schedule to each provider, data reliability will continue to be an issue. If and when MASS is implemented successfully, VHA will be on a path to addressing this. Other issues that may not be addressed by current initiatives are further standardization of booking templates and greater focus on managing clinic cancellations. On standardizing templates, for example, only primary care has moved systematically to establish guidelines related to profile design/set-up.

Given the status of these initiatives and the important gaps mentioned above, VHA should consider the following recommendations:

5.3.1 In the Short-Term, Complete the Clinic Profile Cleanup Initiative to Improve Understanding of Appointment Supply

This would be a first step to addressing the issue of the limited visibility that VHA has into supply as discussed in the first finding of this section. This effort could:

- **Identify provider and administrative champions at each VAMC to oversee clinic profile cleanup efforts:** VHA should identify owners of clinic profile clean-up for each clinical area and allow dedicated time to facilitate these processes. Facilities also should ensure appropriate staffing is in place to accommodate profile modification requests.
- **Require all services to perform clinic profile cleanups across all facilities:** VHA should provide national guidance on appropriate stop code use and clinic profile setup for each specialty to ensure standardization within specialties, as Primary Care has provided in its clinic profile standardization guide. VHA should mandate completion within three to six months, which is consistent with Primary Care's three-month implementation timeline. Virtual auditing should be managed by the central office to ensure compliance

5.3.2 In the Longer Term, Transition to a System Design That Allows Accurate Viewing of Provider Supply

The several ongoing profile clean-up initiatives, while improving the accuracy and reliability of appointment supply and utilization monitoring in the short term, will not necessarily eliminate the potential for overlapping profiles. The existence of potential overlap therefore limits the transparency of scheduling performance and the potential to view overall appointment availability. With VA OI&T's current procurement of a new scheduling system, VHA may be on the path to do this. Scheduling System Section 7 describes the recommendations for successful implementation of a new system in detail.

5.3.3 Develop an Appointment Demand Model to Supplement the Ability to Monitor and Forecast Aggregate Supply

VHA's facility and clinic-level understanding of demand is predominantly retrospective. As such, it is difficult to identify and plan for short- and long-term supply-demand mismatches. By improving appointment supply monitoring (as mentioned in recommendations 5.3.1 and 5.3.2) and also creating an appointment demand model, VHA will be better able to manage access holistically. The model should incorporate historical demand data as well as projected population changes to enable forecasting of hourly, daily, and weekly appointment demand at the clinic level. The historical demand data required for this tool are likely already available within the VSSC system, which houses pending appointment information, and the Corporate Data Warehouse, which contains clinic-level utilization by date, time, season, and other factors, along with other sources. The key success factors for this model will be making sure it is flexible and able to be improved upon over time as well as ensuring it is quick and user-friendly to operate on a regular (even daily) basis at the clinic level. This recommendation, in concert with improved supply visibility, will enable more dynamic access management and planning.

5.3.4 Consider National Sub-Specialty-Specific Standards/Guidance on Session/Appointment Length and Develop VHA-Wide Policies for Provider Leave and Cancellations

As mentioned above, the national Primary Care program office has taken a more active role in establishing VHA-wide standards for appointment lengths, same-day appointment slots, maximum number of clinic profiles, and use of recall and of EWL (Prentice, “Appointment Age,” 2015). We would consider the standards for appointment lengths to be one element of a standard booking template. However, this directive does not address several other management practices (like clinic cancellation monitoring and appointment mix determination) or address elements of a standard booking template for specialty care.

VHA should expand upon efforts within Primary Care by providing specialty and sub-specialty-specific standards for booking templates. This effort could:

- **Develop provider template standards for each specialty and sub-specialty:** VHA should provide sub-specialty national guidance on clinic session length per clinical FTE allocation and appointment lengths for different types of patients. Recommendations on appointment length should include consideration of clinical workflow factors (such as clinical and non-clinical support staff, exam rooms, equipment, provider tenure) that may vary by provider and clinic. VHA should also provide guidance on developing appropriate appointment mix and adjusting mix to match local demand. These recommendations should standardize and improve clinic operations, resulting in better throughput, increased provider availability for patients, and improved process accountability.
- **Develop system-wide policies on provider leave and cancellations:** A system-wide leave policy should require providers to submit leave requests that match the appointment booking horizon for both new and established patients. VHA also should introduce standard operating procedures to ensure vacation/leave requests are reflected in the scheduling system and that communication practices are standardized across clinics and facilities. VHA should establish national targets for cancellation rates by clinic type and track performance against this target at a provider-level. This recommendation should result in a reduced rate of cancellations by clinics, which likely will improve patient satisfaction and reduce the amount of scheduler time spent on rework.

5.3.5 Appropriately Scope, Resource, and Implement the Clinic Manager Program to Ensure That Provider Availability is Actively Managed

- **Prioritize monitoring and managing of provider time within new clinic manager role:** VAMCs should utilize new clinic manager positions at facility- and clinic-level to monitor provider time in clinic and include the monitoring of provider clinic time in group practice manager and clinic access manager responsibility expectations. In the short term, clinic managers should manually compare time available across clinic profiles to assigned time in clinic on at least a quarterly basis and whenever a provider requests a template profile change. In parallel, profiles should be consolidated into one view to enable the monitoring of true provider supply and fill rate, as well as to reduce scheduler workload and error rate. It is important that VHA consider approving and funding additional hires to fulfill clinic management responsibilities, as the expected scope of activity outlined in the clinic management model initiative is both ambitious and necessary to improve scheduling and access more broadly. As an example, Kaiser Permanente and Cleveland Clinic both have dedicated consulting resources, informatics, and analytics resources to assist with execution of similar access management tasks (Kaiser interview, 2015; Cleveland Clinic interview, 2015). By implementing the above recommendations, VHA likely would achieve improved provider availability and increased patient access to care.
- **Continue to develop and distribute key tools and processes to enable more consistent management:** These might include operating procedures; standard tools for facility- and clinic-level performance management;[32] and comparative analyses of metrics like utilization rate, appointment length and appointment mix ratio.

---

[32] Many of these tools and processes are referenced in draft GPM and clinic manager training curriculum materials ("CPM Curriculum," 2015).

6 Scheduling Process

6.1 Context & Approach

Appointment scheduling at VHA facilities involves a number of interrelated policies, processes, performance measures and accountabilities that together can influence when a Veteran receives care and the Veteran's experience as he or she navigates the system. Many of the processes described in this section outside of the core function of scheduling are unique to VHA, both by virtue of it being an integrated system and a government organization with public reporting responsibilities.

A number of these VHA-specific policies exist at the national and local level and are aimed at gaining transparency into unmet demand and managing backlogs. These policies range from the 2010 Scheduling Directive and its recent clarification memo, which primarily articulate policies for capturing information to assess wait times and for using new patient wait lists (often referred to as the Electronic Wait List or EWL) to facility and clinical specialty-level service agreements that determine how primary care and the consulting specialty will manage patients when needs for specific specialty services arise (called the "consult" process) to the use of the Veteran's Choice List, which is utilized when patients are deemed eligible and are waiting to be scheduled for care outside VHA when access to a particular service or specialty is not available ("Veterans," 2014).

To understand wait times for care, VHA has generally used one of two measures:

1. If the patient is new to the clinic, then the wait time is calculated as the difference in days between the creation date of the appointment in the VistA system and the day of the appointment.
2. For an established patient, policy states that the wait time is equal to the difference in days between the patient's "desired date" for the appointment and the date of the actual appointment. The scheduler is responsible for inquiring about and entering the patient's desired date into the system.[33]

VHA has recently introduced two new wait time measures:

1. Preferred date, which is described as the "date the patient prefers to come in for his appointment"
2. Clinically-indicated date (CID), which is described as the "date the provider and the patient agree upon for a follow-up visit" ("Clarification" Webinar, 2015).

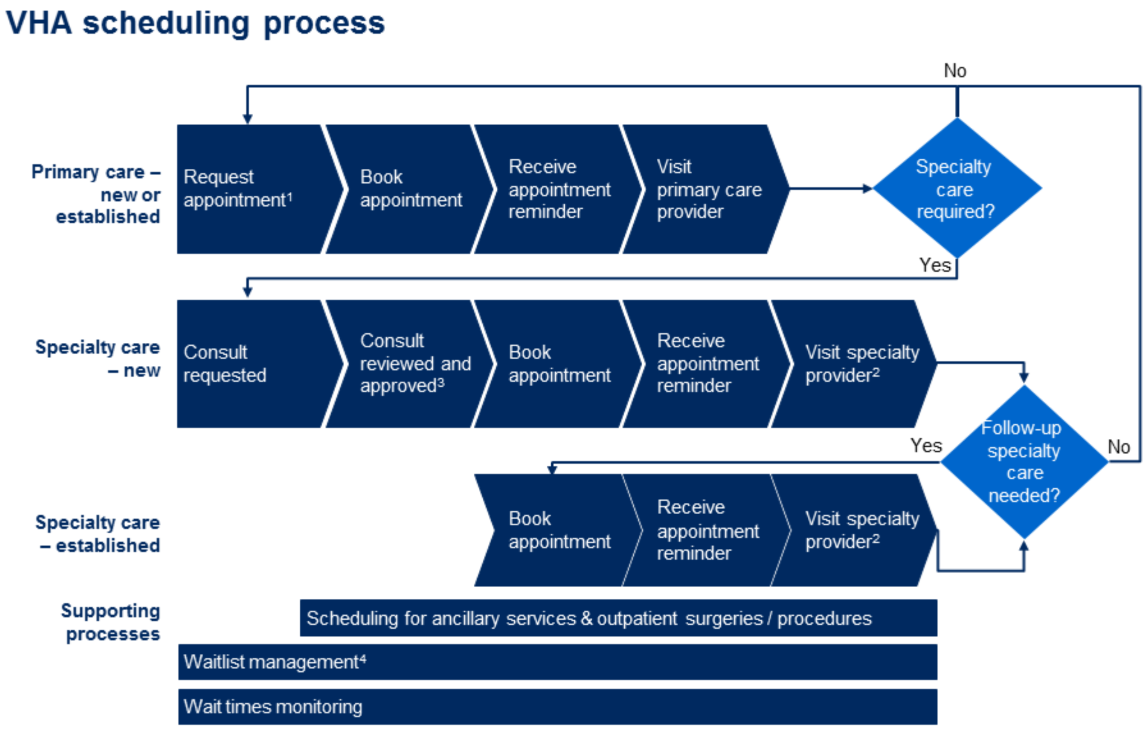
In addition to national, facility and clinical service-level scheduling policies, VHA requires clinics to use additional scheduling practices such as the recall system, which allows patients to defer booking a follow-up appointment until closer to the date in which they are to be seen (commonly seen in primary care and dental scheduling in the private sector when patients receive a reminder to schedule an annual visit). For additional background on the VHA scheduling process, see Appendix D.1.

---

[33] See Appendix D-1 for more information

The Choice Act specifically identifies the need to assess the workflow for scheduling appointments as well as potential changes to the monitoring/assessment of wait times that VHA uses. Therefore, this section covers the end-to-end scheduling process and related policies for new and existing patients as well as related processes that disproportionately impact scheduling, for example, the consult process. Our review included the areas highlighted in (Figure 6-1).

Figure 6-1. Overview of VHA Scheduling Process


VHA scheduling process
No
Primary care – new or established
Request appointment¹
Book appointment
Receive appointment reminder
Visit primary care provider
Specialty care required?
Yes
Specialty care – new
Consult requested
Consult reviewed and approved³
Book appointment
Receive appointment reminder
Visit specialty provider²
Yes
Follow-up specialty care needed?
No
Specialty care – established
Book appointment
Receive appointment reminder
Visit specialty provider²
Supporting processes
Scheduling for ancillary services & outpatient surgeries / procedures
Waitlist management⁴
Wait times monitoring

1 Assumes Veteran determined eligible
2 This step includes scheduled specialty care (visits, procedures, surgeries) as well as ancillary care (radiology, labs)
3 Request must be approved for patient to see specialist
4 Waitlists are used for new patients and certain established patients

Figure 6-1 shows the typical patient journey along with supporting processes. This flow generally applies to both new and established patients. However, patients may not need to start at the very beginning of process if they are already established with a particular clinic. Source: Choice Act site visits, interviews, 2015.

To understand these processes, we used a variety of data sources in addition to our site visits to 25 VAMCs and 23 CBOCs, interviews, and research to codify best and private sector practices. These sources and analysis included:

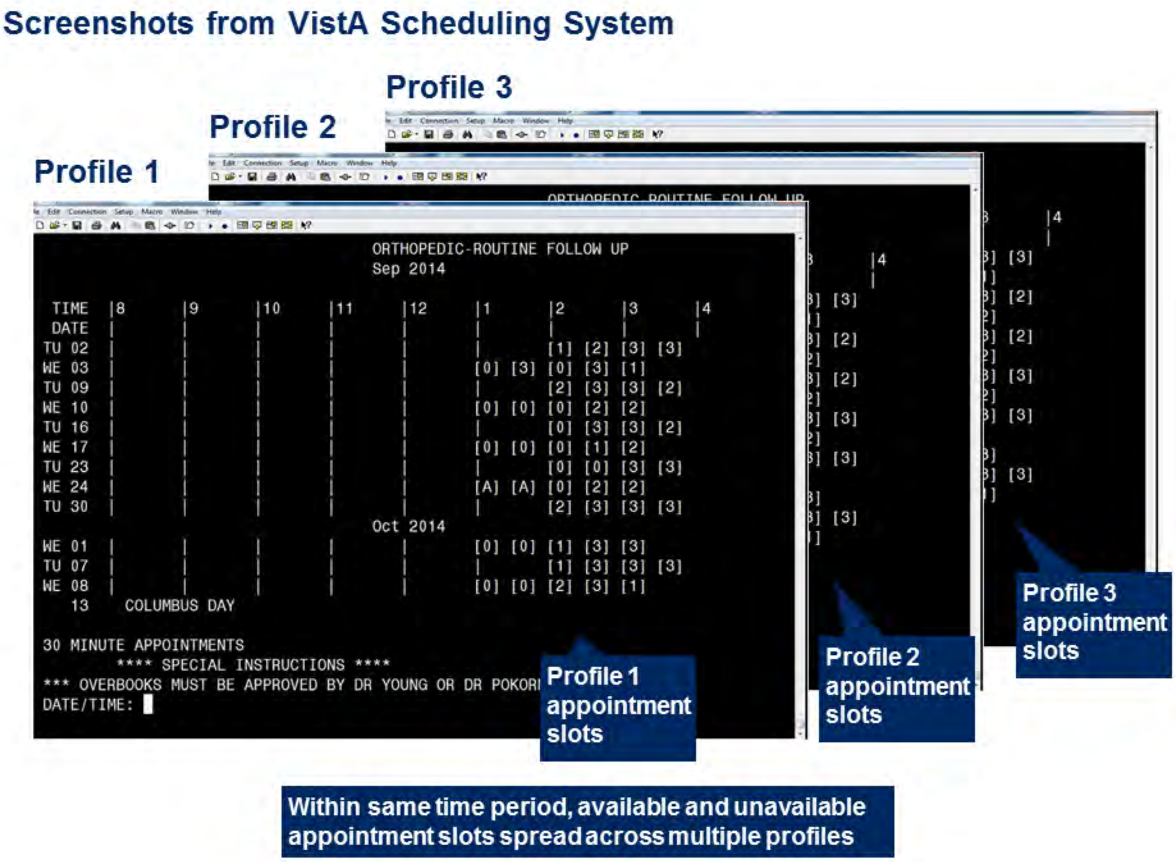
- Analysis of CDW appointment-level data from 152 VAMCs and 811 CBOCs, including 5,644 total clinics for a seven-month period in 2014, including information on appointment cancellations, missed opportunities and overbooking
- Clinic Access Index data for the 25 VAMCs that were visited as part of this assessment's site visits, including metrics such as clinic cancellations
- A survey of Medical Support Assistant (MSA), the primary scheduler role, supervisors (N=86) covering use of patient reminders
- Review of locally stored consult status and time statistics data from three VAMCs for a six month-period of 2014, including completion rate and processing time
- Manual review of provider schedules (often referred to as grids, profiles or templates), and assessment of time in-clinic for two specialties, 15 physicians and 12 profiles over six months in 2014 and 2015
- Analysis of MSA turnover and staffing data from 2014 and 2015, including current vacancies across all facilities as of March 2015, from VHA Healthcare Talent Management Office

6.2 Findings

6.2.1 Schedulers' Ability to Efficiently Identify and Book Available Appointments is Limited by System Usability

As described in Provider Availability Section 5, the VistA Scheduling System was designed to capture provider workload across multiple clinic profiles, and does not optimize for scheduler usability. Specifically, schedulers are not able to search across multiple profiles or weeks for available slots without "rolling and scrolling" through multiple screens as they can only see a week of availability in one profile at a time. Figure 6-2 shows screenshots from the VistA Scheduling System of an example set of profiles for one provider that a scheduler would have to review to book an appointment.

Figure 6-2. Screenshots from VistA Scheduling System



```
                                    ORTHOPEDIC-ROUTINE FOLLOW UP
                                    Sep 2014

 TIME  |8       |9       |10      |11      |12      |1       |2       |3       |4
 DATE  |        |        |        |        |        |        |        |        |
TU 02  |        |        |        |        |        |        [1] [2] [3] [3]
WE 03  |        |        |        |        |        [0] [3] [0] [3] [1]
TU 09  |        |        |        |        |        |        [2] [3] [3] [2]
WE 10  |        |        |        |        |        [0] [0] [0] [2] [2]
TU 16  |        |        |        |        |        |        [0] [3] [3] [2]
WE 17  |        |        |        |        |        [0] [0] [0] [1] [2]
TU 23  |        |        |        |        |        |        [0] [0] [3] [3]
WE 24  |        |        |        |        |        [A] [A] [0] [2] [2]
TU 30  |        |        |        |        |        |        [2] [3] [3] [3]
                                    Oct 2014
WE 01  |        |        |        |        |        [0] [0] [1] [3] [3]
TU 07  |        |        |        |        |        |        [1] [3] [3] [3]
WE 08  |        |        |        |        |        [0] [0] [2] [3] [1]
   13     COLUMBUS DAY

30 MINUTE APPOINTMENTS
        **** SPECIAL INSTRUCTIONS ****
*** OVERBOOKS MUST BE APPROVED BY DR YOUNG OR DR POKORI
DATE/TIME:
```

Profile 1 appointment slots

Profile 2 appointment slots

Profile 3 appointment slots

Within same time period, available and unavailable appointment slots spread across multiple profiles

Figure 6-2 shows a screenshot from within VistA Scheduling of a set of clinic profiles for one provider. This exhibit demonstrates that a provider's schedule may be spread across multiple, separate clinic profiles. Schedulers may need to look through each of these profiles (in this example, four different profiles) to find an available appointment. Each hour is across the top and each date over an 11-day period is down the left side. Key: 0 = filled slot; 1 = open slot; 2 = 2 open slots; 3 = 3 open slots. A = single overbook. Source: ACAP office webinar ("Making Appt v2_7-23-2014 1.51.07pm," accessed June 25, 2015).

A large majority (74 percent) of scheduler group interviews[34] identified scheduling system usability as a key issue that impacts their daily lives. Thirty-nine percent of scheduler group interviews[35] specifically identified the lack of a "single screen" view of a provider's schedule as particularly cumbersome. As one scheduler described, "I have to look through three or four profiles to try to find an open appointment slot, which means it takes three or four times as long [as other systems] to book an appointment." The current system can also result in issues such as missing an available appointment slot to offer. "Sometimes there might be an open appointment slot, but if you don't know where to look for it [within multiple profiles], you can easily miss it. Then that slot may go unused," reported one scheduler. Finally, the lack of an entire view of a provider's schedule in one screen potentially inhibits a scheduler's ability to effectively implement booking strategy (such as overbooking).

---

[34] Site visit scheduler group interviews, N=17 of 23 VAMCs

[35] Site visit scheduler group interviews, N=9 of 23 VAMCs

Beyond standard appointment booking, schedulers may need to schedule additional services that add to the number of profiles with which they must be familiar. For example, schedulers are able to schedule into any profile to which they have access, which may include, for example, radiology or procedures for schedulers who support a procedural provider specialty. Schedulers, as a service to patients, may also attempt to coordinate different types of appointments with services or providers whose schedules they may not be able to access. This coordination is often important given that a third of VHA patients have at least three chronic conditions, and 22 percent have four or more (Yoon et al., 2011). According to one scheduler, "many of our patients have a lot of appointments, and it's really difficult for us to line them all up on the same day, much less in the same couple hour window" (Choice Act site visits, interviews, 2015).

Coordinating appointments can be logistically challenging for those schedulers. Even with access to the schedules, schedulers would, for example, need to check multiple profiles from providers across two or more clinics for available appointments on the same morning or afternoon. "I have to look at four or five profiles to check when primary care is available, and then I have to look at just as many for podiatry. Then I have to call down to radiology to make sure they have availability, because I can't see their [system]. It's a mess," according to one (Choice Act site visits, interviews, 2015). This issue is further compounded in access-limited clinics as available appointment slots can be scarce and take longer to find in the system.

According to 10 private health system executives with insight into scheduling systems interviewed as part of this assessment, very few scheduling systems in the U.S. are this difficult to search. The ultimate impact of these VHA-specific limitations is that the system is not user friendly, potentially resulting in less efficient booking of appointments and patients receiving sub-optimal appointment dates/times.

6.2.2 Numerous Policies And Processes Designed to Manage Appointment Supply/Demand Imbalance Increase Complexity for Schedulers and Result in Inconsistent Patient Experience

To ensure transparency into patient access and demand management, VHA has developed a number unique processes not typically present in the broader industry's approach to scheduling. These unique processes include a series of patient wait lists as well as scheduler-driven capture of wait times, which are designed to give VHA and other organizations visibility into VHA facilities' management of wait times and backlogs. Another unique process is the consult process, which is intended to help manage the demand for specialist appointments by ensuring that only appropriately referred patients take up scarce appointment supply.

To embed the wait list and wait time management steps in the scheduling process, VHA developed a national scheduling policy to which facilities are required to adhere. The policy focuses on providing guidance for how to collect data in a standardized, reliable fashion to enable facilities and VHA more broadly to monitor and compare performance internally as well as report it externally. Nearly 40 percent of the most recent directive focuses on data capture; these sections focus on either definitions of care (27 sections) or desired date capture instruction (13 sections) (VHA Directive 2010-027). In addition, the definitions, purpose, and eligibility of the EWL and other VHA-specific lists (such as recall) are described. These wait lists are detailed in Appendix Table D-1.

6.2.2.1 Waitlist Policies, While Necessary to Understand Demand Backlog, Complicate the Scheduling Process Without Sufficient Implementation Guidance

When national policy is disseminated, the field receives limited guidance and support for operationalizing, according to our site visit interviews. Administrators at 14 VAMCs[36] we visited cited lack of implementation support as a major challenge to adhering to new policies. The use of the EWL was an often-cited example of a challenging policy to manage, especially for clinics with significant provider capacity issues as the wait list is most administratively burdensome in these environments due to its length. Specifically, the EWL is the “official VHA wait list” and catalogues all patients who are new[37] to a clinic but have appointments scheduled beyond 90 days (VHA Directive 2010-027). The length of this wait list often is used as a measure of backlog and provides VHA with comparable data across facilities and clinics. The Scheduling Directive provides guidance on:

- **Adding patients to the wait list**: New patients who “cannot be scheduled in target timeframes” should be added to the EWL.”
- **Reviewing the wait list:** “Schedulers in all clinics at all locations (substations) must review the EWL daily to determine if newly enrolled or newly registered patients are requesting care in their clinic at their location.”
- **Removing patients from the wait list:** “When appointments become available and the facility has at least three days to give patients notice, scheduling personnel [must] offer appointments to patients who are either on the EWL waiting for appointments, or currently have appointments more than 30 days past the desired dates of care.”
- **Prioritization:** When “Veterans are removed from the EWL…Veterans who are [service connected (SC)[38]] 50 percent or greater, or Veterans less than 50 percent SC requiring care for a SC disability must be given priority over other Veterans.”

However, to implement this policy effectively, administrators must be able to interpret it correctly and train schedulers to:

1. Determine when to put a patient on the EWL

---

[36] Site visit scheduling administrative leader interviews, N=14 of 24 VAMCs

[37] Per the 2010 scheduling directive, any patient not seen by a qualifying provider type within a defined stop code or stop code group at that facility, within the past 24 months

[38] Refers to “injuries or diseases that happened while on active duty, or made worse by active military service” (“Disability Compensation,” 2015)

2. Access the EWL, in a separate program linked to VistA Scheduling, and use the EWL as a call list for patients to contact if a slot were to become available
3. Prioritize the use of EWL in light of other clinic duties (such as making appointment reminder calls)

Interviews suggested that the dissemination of tools to support administrators in doing the above was limited and left to VISNs or individual facilities to develop for their clinics. One facility, for example, designed its own aggregated dashboard for wait lists so that administrators could more effectively monitor their use. Others created step-by-step handbooks to guide schedulers through the mechanics of adding patients to the wait list programs.

Despite these local efforts at many facilities, we observed that the wait list was not used consistently or according to policy across clinics. Examples of this included:

- **Example A**: In these clinics, schedulers were encouraged to add any eligible patients to the wait list. However, the clinic would not necessarily consistently manage the list. Instead, the list was primarily used to document potential backlogs to the facility, VISN, and national leadership. This was reportedly due to a number of factors, including lack of time and limited instruction for how and when to remove patients from the list. As a result, patients on the EWL may not have been seen in as timely a manner as they could have been if the list were actively managed against open slots.
- **Example B**: Within this scenario, schedulers, like in type A, added eligible patients to the EWL, consistent with national policy. However, in addition to using the list as a measurement of backlog, it also served as a source of patients to be fit into newly available appointment slots. For instance, when an appointment became available with at least three days into the future, schedulers called patients from the EWL to ask if they wanted to move up to an earlier appointment time.
- **Example C**: In this implementation form, schedulers used the list as a measurement of backlog (like in A and B) and as a way to get patients with long waits in sooner (like in B). However, in this scenario, schedulers also prioritized patients based on policy guidance (giving preference with higher service connection) as well as other factors such as the number of contacts already made.

While difficult to understand the individual patient impact from these examples, it was clear that patients were not necessarily being treated consistently across facilities. This variability may result in patients with extended wait times not receiving an opportunity to be seen earlier, resulting in potentially worse patient outcomes and decreased patient satisfaction.

Another example of policy that the field has found challenging to manage is the Veterans Choice Program and accompanying Veterans Choice List (VCL). The Choice Program, which was rolled out in late 2014 under a compressed time frame, was designed to enable patients who have longer than 30 day wait times or live greater than 40 miles from a VA facility to seek care outside VA ("Veterans," 2014). According to VHA leadership, the pace at which the program was rolled out prevented complete implementation planning before engaging patients and the field (ACAP, interview, 2015). From the perspective of leaders of non-VA care offices at the sites we visited, the implementation of this program was largely left to individual facilities (Choice site visits, interviews, 2015). In addition, in our discussions:

- Seventy-one percent of non-VA care office interviews[39] cited Choice Act implementation challenges and 62 percent[40] cited the additional administrative burden/processes as a major challenge
- Seventeen percent of scheduler group interviews[41] and 43 percent of clinical administrator group interviews[42] cited "Choice" or "VCL" as challenges

"We didn't get any guidance or time to plan. We were just told, 'Go do it,'" reported one HAS administrator. Individuals from multiple roles across sites reported that while a lack of tools were an issue, the lack of clear operational planning was even more problematic. "[The Choice Program] process makes no sense. They didn't think through how it would actually work at the facilities. Now we're left to pick up the pieces," explained a surgical service AO. The ultimate result of these issues has been variable implementation. Facilities have developed different processes for identifying eligible patients for Choice, handing thee patients off from clinics to Choice Program administrators, reviewing and approving requests, contacting Veterans and non-VA providers to create the appointment, ensuring patients keep their non-VA appointments, and documenting the results of their visits. Creating these process flows locally has likely resulted in differences in patient experience and also frustration and confusion for VHA employees. One scheduler summarized the impact to the patient, "Veterans are confused and frustrated because we're confused and frustrated" (Choice Act site visits, interviews, 2015).

6.2.2.2 VHA's Consult Processes May Delay Scheduling and Affect Timeliness of Care

At 76 percent of facilities, chiefs of staff[43] identified the consult process (when one provider requests care for a patient from another provider) as a challenge for both primary care and specialty providers (Choice site visits, interviews, 2015). While national policy mandates that consult requests be reviewed within seven days of receipt (VHA Directive 2008-056), as of the writing of this report, the consult standard operating procedures (SOPs) remain in draft. VHA has embarked on an extensive training campaign for consults ("VHA Consult"; "VISN," 2015). However, these efforts may not have been fully reflected on our site visits or data analysis, which suggested that the consult review process varies by facility in terms of frequency, type of reviewer, method of communication, and likelihood that patients are accepted by the consulting service. Figure 6-3 shows consult times for 19 of the top 20 stop codes at two large urban facilities in the second half of 2014 by the average number of days between the consult being generated and the appointment for the service being scheduled.

---

[39] Site visit non-VA care office interviews, N=15 of 21 respondents

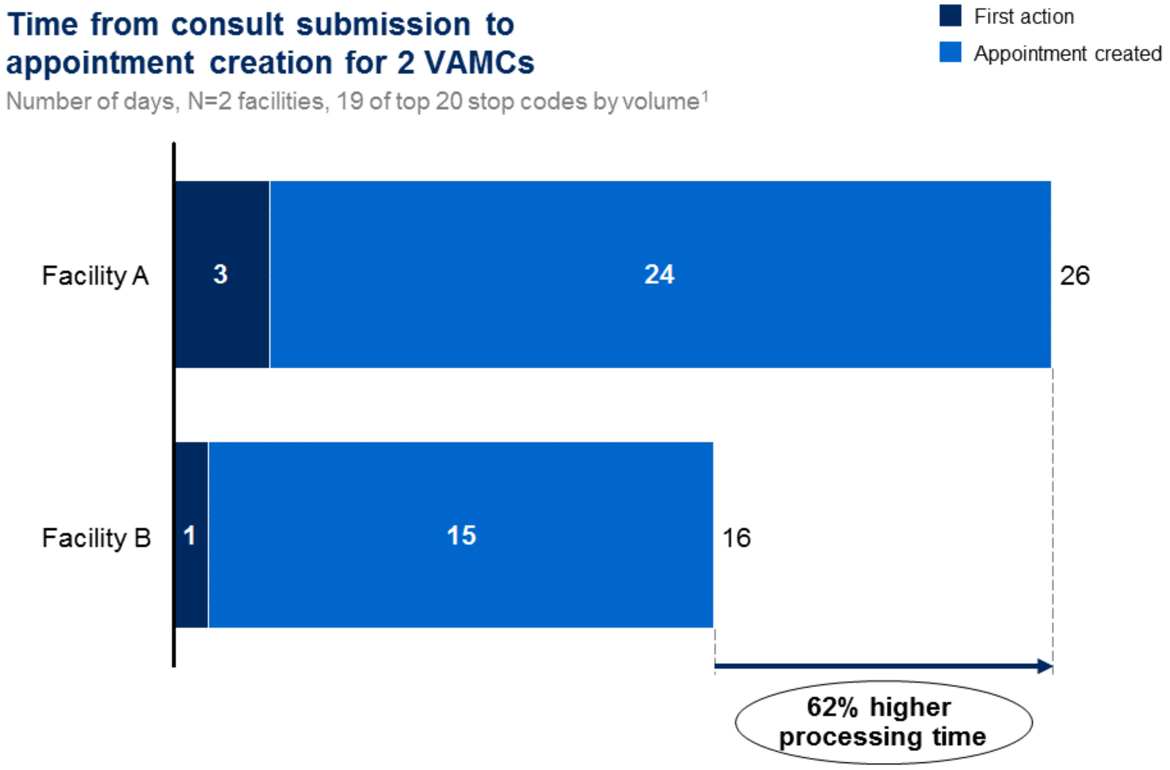
[40] Site visit non-VA care office interviews, N=13 of 21 respondents

[41] Site visit scheduler group interviews, N=4 of 23 VAMCs

[42] Site visit scheduler group interviews, N=10 of 23 VAMCs

[43] Site visit chief of staff interviews, N=13 of 17 respondents

Figure 6-3. Time From Consult Submission to Appointment Creation for two VAMCs



1 One facility only submitted 19 stop codes, so only these stop codes were compared across facilities

2 Includes stop codes: 203: Audiology; 205: Physical Therapy; 304: Dermatology; 305: Endo/Metab (Except Diabetes); 307: Gastroenterology; 312: Pulmonary/Chest; 313: Renal/Nephrol (Except Dialysis); 314: Rheumatology; 315: Neurology; 316: Oncology/Tumor; 321: GI Endoscopy; 349: Sleep Medicine; 403: ENT; 407: Ophthalmology; 408: Optometry; 409: Orthopedics; 411: Podiatry; 414: Urology; 420: Pain Clinic

Figure 6-3 shows average number of days until an appointment is scheduled for each step of the process for two facilities across the top 20 stop codes by consult volume. This analysis shows that the consult approval and appointment creation process takes 62 percent longer (26 days vs. 16 days) for Facility A than B. This data was compiled based on facilities' locally stored consult data metrics and represents six months of consult data from two large, urban, high complexity facilities. This time period was chosen because new business rules went into effect in June 2014. Source: Local VAMC data, 2014.

The results show that Facility A has significantly longer processing and scheduling times than Facility B. The approval and appointment creation process takes 62 percent longer (26 days vs. 16 days) in Facility A than Facility B. By simply decreasing the consult processing time to the level of Facility B's, Facility A could reduce consult wait time by 10 days.

A separate analysis of consult completion rates was performed across two large urban high complexity facilities. Interestingly, while the facilities frequently had widely different completion rates within the same specialties, neither facility consistently fared better than the other. For instance, within Optometry 95 percent of one facility's consults were completed compared to 54 percent of the other's; for the Pain Clinic, the range was similarly wide (83 percent vs. 31 percent), only this time the relationship was reversed in terms of which facility had the higher success rate. Numerous factors may be affecting these success rates. For instance, consults may show as incomplete even if the Veteran was seen because the clinic note was not linked to the consult. Similarly, Veterans may decide they do not want to see the specialist and so never make an appointment. Providers in this situation may be reluctant to cancel the consult to protect the patient's ability to see the specialist in the future. Despite these limitations, if providers were operating consistently across facilities in terms of consult request, review, and closing of consult, then same-specialty completion rates would be expected to be similar, which they are not for at least this limited sample.

The variable time and completion performance across facilities could delay care for Veterans. This inconsistency is likely driven in part by a lack of finalized consult SOPs, as mentioned previously, as well as variable existence of well-designed care coordination agreements. These agreements between referring and receiving clinics, which specify what the consulting services will receive and/or what information they might require in order to do so, are created at the local level ("VHA Consult," 2008). Our interviews with providers suggest that comprehensive care coordination agreements can mitigate some of the review challenges as each specialty has to set forth and agree with its referring providers what constitutes a consult requiring an appointment. According to providers interviewed, the lack of a well-structured agreement between a primary care physician and a specialist may result in submitting the wrong kind of request to the specialist, improper work-ups (for example, insufficient testing done), and/or denial of a consult that requires an appointment, all of which may be contributing to the differences in completion rates described previously.

Within integrated health systems in the private sector, some have gone beyond system-wide service agreements and allow primary care providers to determine whether a patient should be seen by a specialist without the specialist's input or review in advance. For example, Kaiser Permanente allows primary care providers to directly schedule specialty appointments on behalf of the patient. Often, this is done from the PCP's office while the patient is still there (Kaiser interview, 2015). Direct scheduling of consult visits by primary care offices is encouraged within the consult policy, but this practice was not observed on site visits (VHA Directive 2008-056; Choice Act site visits, 2015). For example, one PCP mentioned that even if he knew a patient would be accepted by the consult service for a time-sensitive issue, the PCP still would have to formally request a consult electronically and then call the specialist physician to review the request before the patient could be scheduled. Kaiser's process bypasses this need for approval and reduces potential delays in care.

6.2.3 Clinics Are not Maximizing Number of Appointments Completed as Originally Scheduled

Our analysis of six months of appointment data for four high-volume stop codes (outpatient identifiers) across 25 VAMCs in 2014 suggests that approximately 35 percent of visits did not result in appointments as originally scheduled (Figure 6-4).

Figure 6-4. Percentage of Clinic Appointments Completed as Originally Scheduled

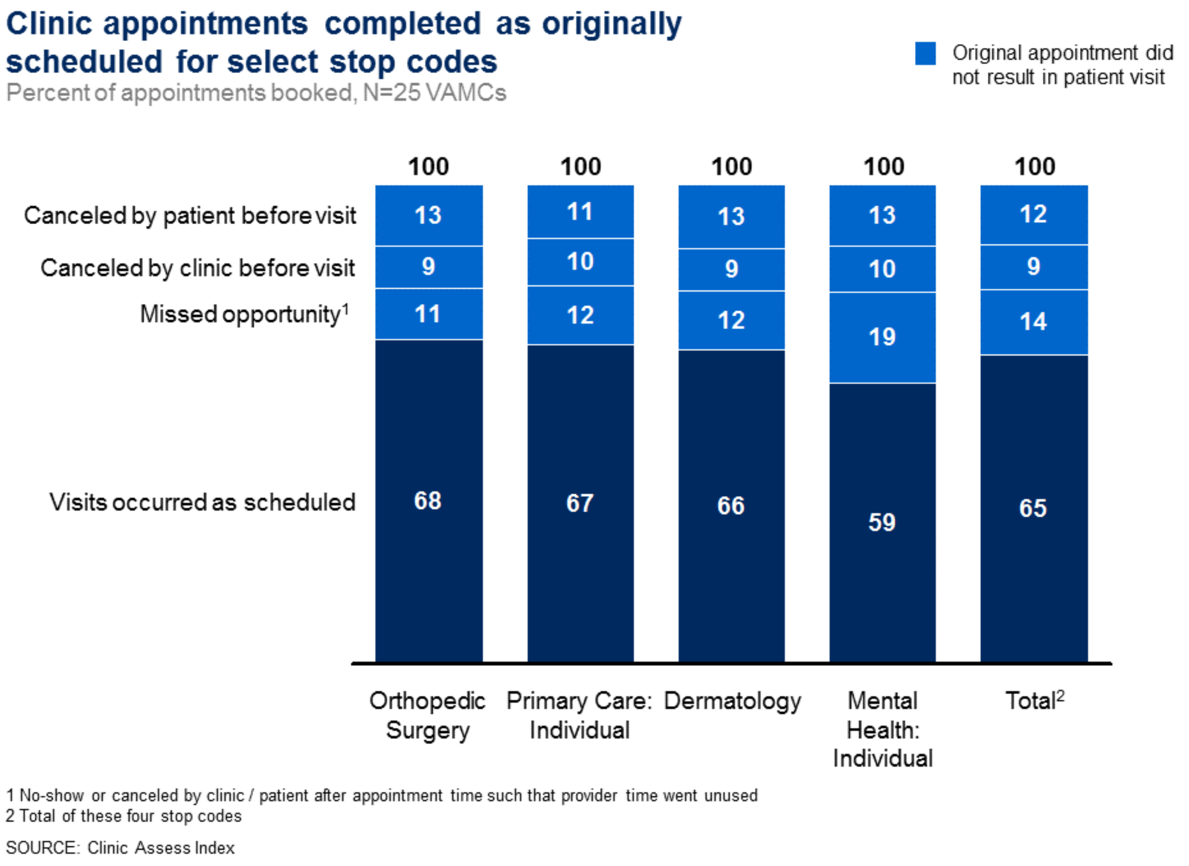


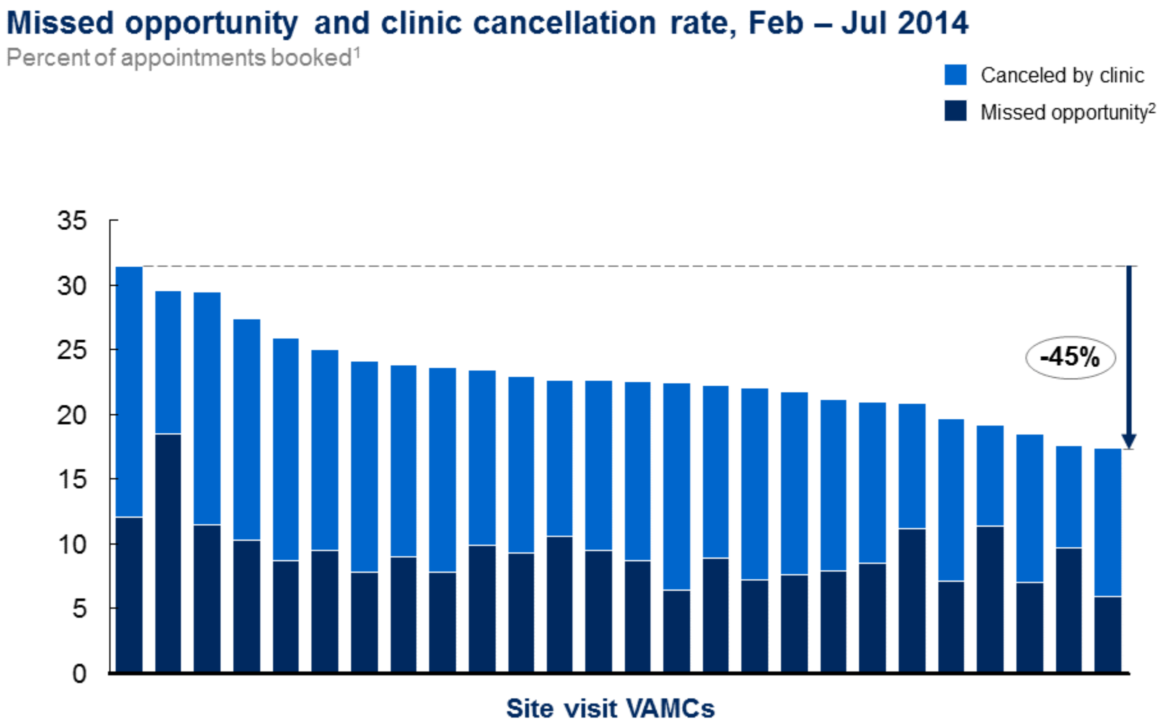
Figure 6-4 shows appointment outcomes for select stop codes. This analysis shows that 35 percent of visits did not result in appointments as originally scheduled. These specialties were chosen based on both volume (323, Primary Care – Individual; 502, Mental Health – Individual represent two largest stop codes) and desired representation from medical (304, Dermatology) and surgical (409, Orthopedic Surgery) specialties. All four specialties are within top 10 clinic stop codes by volume. Source: Clinic Access Index reports, 2014.

Of the appointments that did not occur as scheduled, approximately half were "missed opportunities"—meaning no shows or cancellations after the appointment time ("Access Audit," 2014). Missed opportunities result in unused provider capacity if additional patients, such as walk-ins or overbooks, cannot fill in. VHA's target rate for missed opportunities is 10 percent, but some clinic administrators reported they struggle to meet this standard. While patients failing to keep their appointments is a significant issue for private sector providers as well, best practice national rates range from five to seven percent versus 12 to 14 percent at VHA facilities (Woodcock, 2007). The issue of missed opportunities may be especially prominent in the VA patient population, among whom mental illness, multiple co-morbidities and transportation issues are more common, as these factors have been linked to higher missed opportunity rates (Defife et al., 2010).

As discussed in Provider Availability Section 5, cancellations by clinic, which make up an additional portion of the appointments not completed as originally scheduled, can result in a reduction in overall appointment supply if they are not made up, or inconvenience for the patient and schedulers in the clinic where rescheduling is required. This analysis suggests VHA has an opportunity to improve the utilization of available provider time where it may have gone unused due to missed opportunities. Reducing current levels of missed opportunities and cancellations by clinic could increase patient access with current resources, and improve patient experience and minimize scheduler rework by reducing the need to reschedule.

Beyond the average rates of missed opportunities and cancellations by clinic shown in the data above at the stop code level, variability exists across facilities. As shown in Figure 6.5, facilities vary in their ability to manage missed opportunities and clinic cancellations. Of the 25 site visit facilities, cumulative missed opportunity and cancellation by clinic rates ranged from 17 to 31 percent.

Figure 6-5. Missed Opportunity and Clinic Cancellation Rate, Feb – July 2014



1 Clinics include Primary Care – Individual, Mental Health – Individual, Orthopedic Surgery, and Dermatology across 25 site visit VAMCs
2 No-show or canceled by clinic / patient after appointment time such that provider time went unused

SOURCE: Clinic Access Index

Figure 6.5 shows missed opportunity rate and cancellation by clinic rates as a percent of total booked appointments by VAMC. This analysis shows the cumulative rate of these two outcomes ranges from 17 to 31 percent across 25 site visit VAMCs. Missed opportunity rate includes no shows and cancellations by patient or clinic after the scheduled appointment time. Cancellations by clinic rate includes cancellations by providers and staff before the appointment time. These data come from six months of Clinic Access Index reports from 2014 for each VAMC. These data include four stop codes: 323, Primary Care – Individual; 502, Mental Health – Individual; 304, Dermatology; and 409, Orthopedic Surgery. Source: Clinic Access Index reports, 2014.

Some facilities have significantly lower missed opportunity rates than others (range of 8 to 21 percent across all VAMCs). Not shown is missed opportunities for other services beyond clinic visits, such as procedures and surgeries, where missed opportunities are an especially important issue because of the resources that could go unused. Several administrators responsible for procedure or surgery scheduling[44] identified patients failing to keep appointments as a significant challenge. "If a patient doesn't show up, it's not like we can just fill the spot with someone else because there's prep work that needs to be done," said one gastroenterologist. An OR manager reported, "If a patient doesn't show up for his surgery, that's a big loss. We waste surgeon time, nursing and support staff time, and OR time that could've gone to another patient."

The variable use of scheduling practices, such as patient-friendly appointment reminders and well-designed provider cancellation policies, within certain clinics may be leading to variability in scheduling outcomes. Across VHA, scheduling practices at the clinic level vary significantly, as they often do in the private sector; however, many are not strategically using industry standard techniques to manage missed opportunities via overbooking or minimize cancellation by clinic.

VHA high-performance example: St. Cloud VAMC
St. Cloud VAMC is a low complexity, urban facility, which, at 8.4 percent, had the lowest missed opportunity rate during the sample time period of any VAMCs within the continental U.S. St. Cloud has accomplished this low rate of missed opportunities through several key actions. First, the facility has standardized appointment reminders across all clinics. Patients, regardless of clinic, receive a reminder letter 30 days ahead of their appointment date and an automated phone call two days before. Second, the facility uses a no show predictor tool to identify patients who are high-risk for failing to keep their appointments. This tool was created by the VA Systems Redesign team in conjunction with the University of Pittsburgh Joseph M. Katz Graduate School of Business to identify individuals who are most likely to fail to keep their appointments. It incorporates a large number of inputs from the patient's medical record and was shown in several VAMC pilots to significantly reduce missed opportunity rates when combined with targeted reminders (Systems Redesign, interviews, 2015). Schedulers then call all high-risk patients one day before their appointment date to remind them of their appointment and confirm their attendance. Finally, the facility adheres strictly to the national policy against "blind scheduling," in which an appointment is made without Veteran input. Schedulers are trained on this standard process and are expected to execute it consistently. In concert, these efforts have led to system-leading missed

---

[44] Site visit OR and procedure unit interviews, N=3 of 5 VAMCs

opportunity rates as well as improved patient experience (St. Cloud Business Office, interviews, 2015).

While use of the no show predictor tool was not systematically evaluated for this report, only a subset of clinic administrators at a minority (less than 10 percent) of site visit facilities reported its use. This is despite a national memo to network directors in 2014 requesting that clinics utilize the Missed Opportunity Call List available in VSSC, which provides a list of patients at high-risk for no show that should be contacted in advance ("VHA Missed," 2014). The major barrier to the tool's implementation, according to those leading the sharing effort, was that it was "just one more thing for the scheduler to have to do that they don't have time for." Because the tool was not accommodated into standard scheduling practice, some facilities abandoned it, despite experiencing success, according to Systems Redesign leadership.

In addition to addressing the missed opportunity rate, private sector health systems working to improve access employ another practice to ensure provider time does not go unused: overbooking to the expected no show (or in the case of VHA, missed opportunity) rate (Kumar et al., 2014; Gupta and Denton, 2007, see Appendix D.2). No VHA clinic administrators interviewed stated that schedulers were encouraged to overbook appointments based on the missed opportunity rate and many suggested that overbooking was typically left to the provider's discretion without a clear strategy for overbooking as a whole. According to 88 percent of clinic administrators interviewed,[45] schedulers must receive and document permission for every overbooked appointment, a time-consuming process. In addition, when overbooking policies are left up to providers, the results can be limited, as many of them are not aware of the details of their schedules.

To effectively overbook, many private sector health systems, on the other hand, closely monitor missed opportunity rates by provider, day of week, and season, and then encourage schedulers to book accordingly (Kumar et al., 2014). For example, if 10 percent of patients do not show up for their appointments with a given provider on Friday afternoons, schedulers overbook the provider's slots by 10 percent on that day. Overbooking can also help providers to trim wait lists. While overbooking's impact has not been evaluated in isolation from other scheduling initiatives, our work with provider systems on scheduling/access transformations suggests a potential 10-20 percent increase in visit volume, with overbooking playing a key role in these improvements.

6.2.4 Patient Communication With Respect to Appointments can be Confusing and Contribute to Missed Opportunities or Lost to Follow-up Cases

6.2.4.1 Patient Communication is Inconsistent Between Clinics, Creating Confusion

A common issue raised in scheduler group interviews was the level of confusion that many patients have around navigating the VHA system given its size and the number of different services offered. A particular area that was consistently surfaced was confusion around patient reminders, particularly when Veterans interact with more than one clinic or service, which is common given 48 percent of Veterans have multiple chronic conditions (Yoon et al., 2011). As mentioned previously, the Veteran patient population, for a variety of reasons, is more likely than the general U.S. patient population to fail to keep appointments. As such, VHA dedicates significant effort to patient reminders, as can be seen in Figure 6-6.

---

[45] Site visit clinic administrator interviews, N=59 of 67 respondents

Figure 6-6. Positive Response for use of Reminder at any Time in Scheduling Process From Schedulers Asked: “When do you use the Following Reminders?” VHA Employee Survey, N = 86 MSA Supervisors From 46 VAMCs and 20 CBOCs

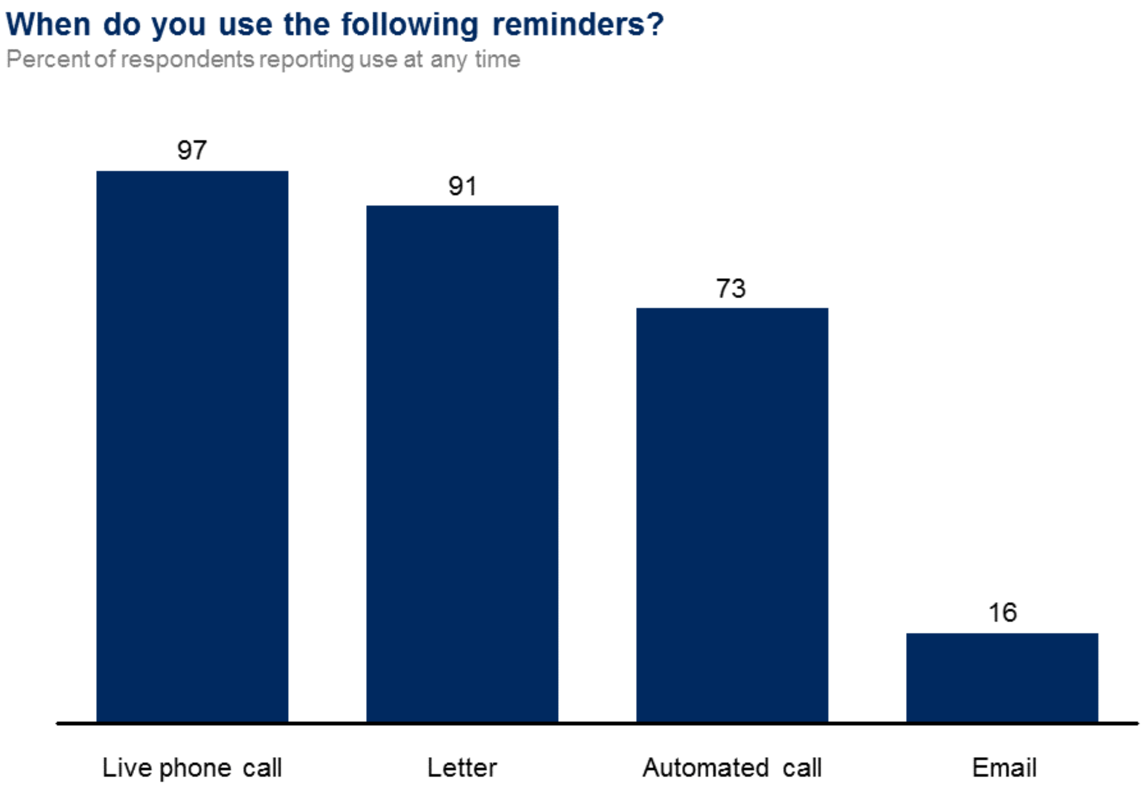


Figure 6-6 shows use of appointment reminder types by clinic. Almost all clinics use live phone calls (97 percent) and letters (91 percent) to remind patients of their appointments. Many also use automated calls (73 percent). Data come from national survey of 86 MSA supervisors from 46 VAMCs and 20 CBOCs. Source: Assessment E VHA employee survey, 2015.

Our survey showed that almost all clinics use live phone calls (97 percent). According to research, live human calls are very effective at reducing missed opportunity rates (Dockery et al., 2001; Sawyer et al., 2002). However, despite the rate of use reported within the survey, we observed on site visits that live phone calls are often not used consistently by frontline schedulers. As one scheduler supervisor noted, “Our clinic policy is to call everyone, but there’s just not enough time.” “When we get a few free minutes, we do the reminder calls. But most days we never get any free time." Clinics blamed high patient volume and low staffing levels as a reason they could not make live phone calls. Some clinics were able to rely on non-clinic-based schedulers, such as volunteers or call centers for help.

Almost all clinics (91 percent) also use a standard system-generated letter to remind patients of upcoming appointments. Interestingly, the timing used varied significantly across clinics, which some scheduler group interviews reported resulted in patient confusion. Twenty-eight percent of clinics report sending a reminder letter at the time the appointment is made, 28 percent in the week leading up to the appointment, and 35 percent with no standard time. When patients receive care from multiple clinics, this inconsistency can lead to patient confusion. “The patient said that he didn’t show up for his appointment because he thought he would get a reminder letter the week before like he does with his primary care doctor. We [in Cardiology] only send the letter when the appointment is made.” Additionally, the actual wording of the letters may be confusing. Postcards and letters use the VistA clinic profile name in the notification, which schedulers suggest can be hard to interpret, as the reminder does not necessarily specify the provider name or reason for the appointment. Further, the scheduling system limits the number of characters for the clinic name and often can lead to the use of names that Veterans or their caregivers may not recognize. A hypothetical example taken from the Primary Care Profile Standardization Guide for appropriate clinic naming is “MIA PACT REDTEAM” (Prentice, “Appointment Age,” 2015); a Veteran may understandably find it difficult to understand that this reminder is for a visit with his or her primary care doctor at the Miami VAMC.

Seventy-three percent of clinics in the above survey also opted to use a “robocall” system to deliver an automated reminder about an upcoming appointment. However, clinic administrators noted that robocalls provide very little information about the appointment itself. Robocalls offer listeners the option to press a button to leave a message, but this message box often goes unmonitored. “Patients sometimes get upset that they don’t get a call back but we can’t even access the mailbox,” reported one scheduler. According to a clinic administrator, “Patients get confused because they think leaving a message will reschedule their appointment, but then the appointment never gets cancelled and no one calls the patient back to reschedule.” This confusion and lack of straightforward communication with VHA may contribute to higher missed opportunity and late cancellation rates.

Many private sector health systems allow patients to choose how and when they would like to be reminded. Beyond live calls, text messaging is particularly popular, and also effective (Koshy et al., 2008, detailed in Appendix D.2). Cleveland Clinic, for instance, allows its patients to opt in to text message reminders; when they receive a reminder text the day before their appointment, they can then confirm or cancel the appointment (“Appointment Checklist,” n.d.). With the exception of a text message reminder pilot at one VAMC, VHA does not permit the use of text or email reminders due to security concerns. While some clinics reported using secure messaging to remind patients of upcoming appointments, no clinic administrators identified that as a standard practice. By using patient-centered appointment communications, clinics can improve the patient experience and manage capacity better.

VHA high-performance example: Detroit VAMC
The Detroit VAMC, operating with guidance from VISN 11, has overhauled its facility-wide reminder process to make it more patient communication more consistent by contracting with a third party vendor to operate its reminder system (Choice site visits, interviews, 2015). Across all clinics within Detroit VAMC, the third party vendor provides written appointment reminders. The vendor mails all reminders ten days before the appointment, which include postcards with patient-friendly naming of clinics[46] and directions to the facility. Additionally, automated phone calls are all performed three days before the appointment. According to the administrator interviewed, using this system has not only improved patient service but also reduced scheduler workload as they no longer have to prepare the reminder letters. One drawback mentioned to this standardized communication method is that some appointment notices (for example, cancellations) may look too similar to appointment confirmations and reminders, potentially resulting in patient confusion. Overall, patient response to the standardized reminder letters has been positive. According to one scheduler, "The patients like it because they know what to expect" (Choice site visits, interviews, 2015).

6.2.4.2 Current Recall Process and 90-Day Scheduling Horizon may Also Create Patient Confusion, Limit Future Access for Individual Patients and Increase Scheduler Workload

Under current national policy, schedules should be kept open three to four months into the future and patients who need an appointment beyond that timeframe may be placed on the recall list (VHA Directive 2010-027). Placement on the recall list means that the clinic will follow up with the patient at a future date with a reminder to schedule an appointment. [47] The recall process was intended to reduce missed opportunity rates for follow-up appointments scheduled far in advance; internal VHA research on appointment data has shown that longer appointment lead times are associated with fewer appointments being kept (Prentice, "Appointment Age," 2015). However, there have been a number of unintended consequences for scheduler workload and patient access.

Scheduler group interviews at 35 percent of site visit VAMCs[48] identified the recall reminder process as a major challenge they would like to see addressed. First, schedulers noted that the recall process is confusing for patients, as the recall notice can look similar to appointment reminders, and some patients would have preferred to have been scheduled while they were leaving the clinic. Second, some patients cannot be reached at a future point and may be "lost" to the clinic without receiving their recommended follow-up appointments. Third, patients may find that the clinic does not have available appointments when they are supposed to return if the clinic is using recall in a backlog situation.

---

[46] Instead of using the VistA system name (e.g., "DET PACT MD1 RED TEAM"), the postcards may use "Primary Care")

[47] Some clinics reported not using recall. According to the 2015 national scheduling directive clarification, facilities can opt out of recall if missed opportunity rates are below 10 percent for three months and clinics can opt out if backlog is greater than 90 days.

[48] Site visit scheduler group interviews, N=18 of 23 VAMCs

According to the schedulers with whom we spoke, patients are called during daytime hours; those who work full-time jobs during daytime hours may not be able to answer the clinic's calls. A significant percentage, the schedulers say, never do. Typically, after two daytime call attempts, the patient is notified by letter; the onus is then on the patient to call the clinic to schedule an appointment (the 2015 scheduling clarification requires that "a minimum of three documented contacts [usually two phone calls and a letter] must be made on separate days using available contact numbers") ("Clarification," 2015). Schedulers also report that contacting patients to schedule follow-up appointments can be time-consuming at the expense of other activities, especially if the patient is unavailable during normal business hours. "I have two full-time schedulers who exclusively call patients on the recall list," said one clinic supervisor.

While the overall process of reminding patients to book follow-up appointments is consistent with industry standards in the private sector, there are several areas of difference. With respect to the scheduling horizon, Geisinger Health System, for instance, generally sets scheduling horizons for its clinics as the normal return visit interval for that specialty plus one month[49] to allow more patients to leave with scheduled appointments (Geisinger interview, 2015). In addition, the private sector uses a wider range of communications. Dental practices, for example, often use text messaging to remind patients to schedule their annual cleanings ("Dental Practice," 2013). Of 10 private sector health system leaders responsible for training who we interviewed, the majority said that their health systems asked patients about preferred hours and phone numbers to increase the likelihood of actually reaching them (Private sector health systems, interviews, 2015). Additionally, increasing contact success rates reduces scheduler workload. According to one scheduler, reducing the number of times needed to reach patients would "cut down easily the most time-consuming part of [his] day."

Facilities are looking at ways to improve the recall process (Choice Act site visits, interviews, 2015). For instance, in Texas, the Temple VAMC's Medical Administration Service is surveying patients about which hours they would prefer to be contacted (Choice Act site visits, interviews, 2015). By improving communication methods, schedulers are more likely to be able to contact patients in fewer attempts, reducing overall workload and improving patient satisfaction.

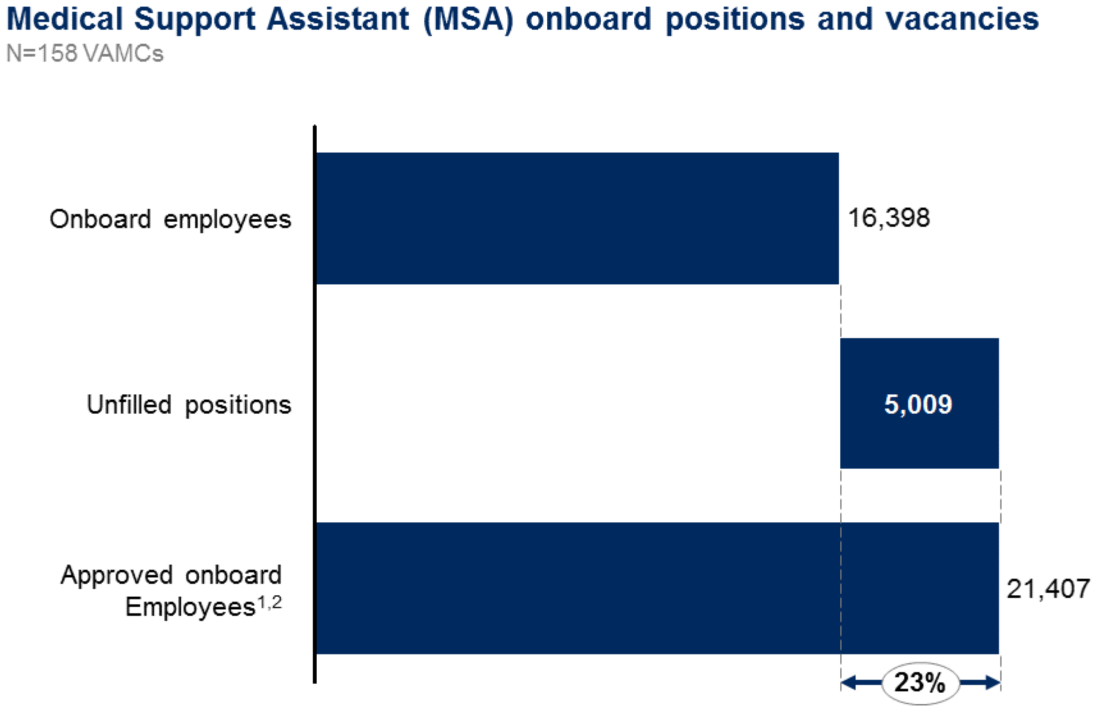
6.2.5 VHA-Specific Personnel Issues, Including Vacancies, may Hinder Use of Scheduling Best Practices

While employees in a variety of roles are able to schedule (as described further in Scheduler Training Section 8), MSAs are the primary VHA frontline scheduling clerks in the clinics. Currently, of the 21,407 approved MSA positions in VHA, almost a quarter are vacant, as shown in Figure 6-7.

---

[49] For instance, if primary care normally has patients return every six months for follow-up visits, then the scheduling horizon would be seven months (three month interval plus a one month buffer).

Figure 6-7. Medical Support Assistant (MSA) Positions, on-the-job, Approved Hires, and Vacancies, Fiscal Year 2014



1 Onboard positions plus vacancies
2 Only includes T38 employees

Source: VSSC, FY 2014

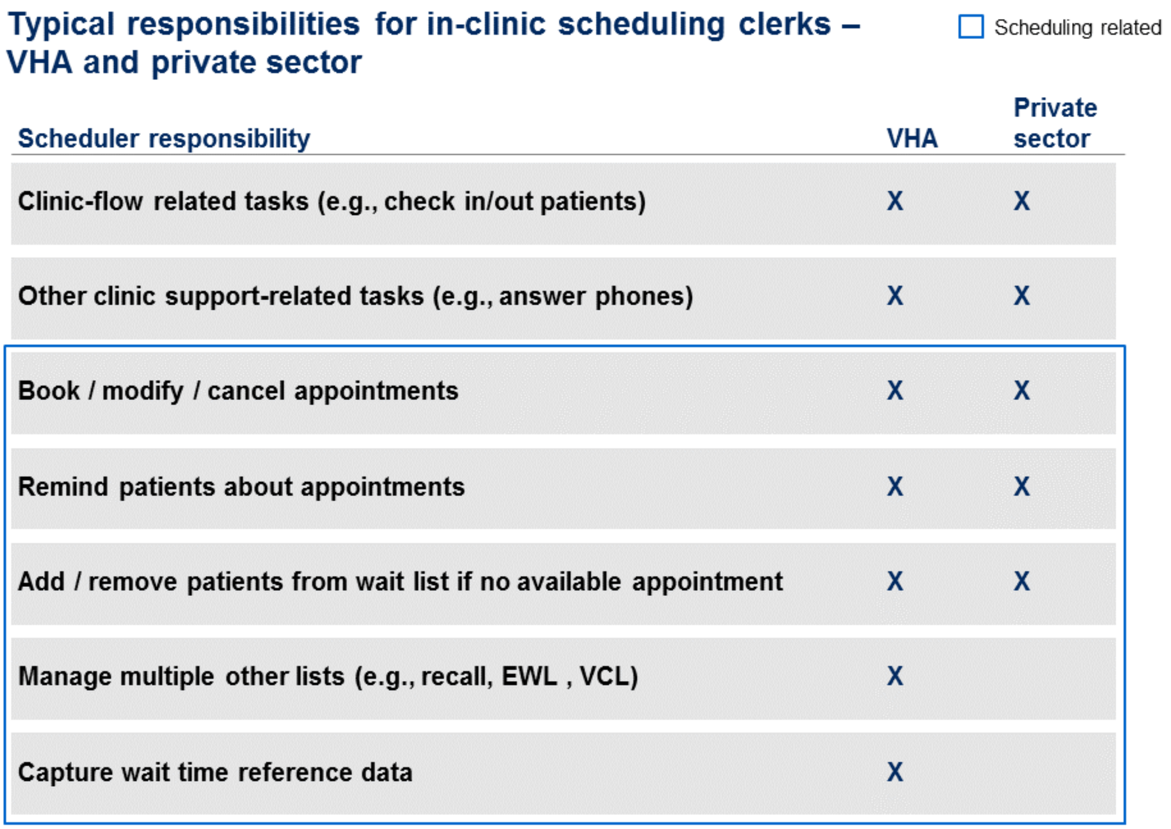
Figure 6-7 shows number of approved, onboard and vacant scheduler (MSA T38) positions across 158 VAMCs as of 3/17/15. This exhibit shows that 23 percent of MSA positions are currently vacant across VHA. Source: VHA Healthcare Talent Management Office, FY2014.

According to interviews with clinic administrators, the lack of scheduler resources makes it difficult to employ best practices or effectively implement VHA-specific policy, because they must focus on “putting out fires” rather than making operations work as well as possible. Administrators blame inefficient human resource processes for not letting them fill the people gaps. According to one, “I have the positions approved, but it takes six months to hire anyone.” Another commented, “We are currently down over 20 [schedulers] from where we should be. We have the positions approved, but HR won’t fill them.”

This finding is consistent with VHA’s Blueprint for Excellence labeling hiring as a “critical challenge” across all of VHA (“Blueprint,” 2014). Similarly, Assessment L’s report states, “HR has not been able to meet the recruiting requirements of the VAMCs and VISNs. Recruiting is crippled due to the length of process and cumbersome systems that don’t “talk” to one another and are not user-friendly. The length of time to hire priority positions stretches for months, and the process is not user-friendly to applicants. HR is expected to fill a position within 60 calendar days, 80 percent of the time, but process requirements, even if perfectly executed, take ~49-62 day.”

In addition to being short-staffed, VHA schedulers also tend to be responsible for more activities than non-VHA schedulers (Figure 6-8).

Figure 6-8. Typical Scheduling Responsibilities, VHA and Private Sector



Typical responsibilities for in-clinic scheduling clerks – VHA and private sector

☐ Scheduling related

Scheduler responsibility	VHA	Private sector
Clinic-flow related tasks (e.g., check in/out patients)	X	X
Other clinic support-related tasks (e.g., answer phones)	X	X
Book / modify / cancel appointments	X	X
Remind patients about appointments	X	X
Add / remove patients from wait list if no available appointment	X	X
Manage multiple other lists (e.g., recall, EWL , VCL)	X	
Capture wait time reference data	X	

Figure 6-8 shows standard expectations for scheduling in VHA compared to private sector. This exhibit shows that VHA schedulers are typically responsible for additional scheduling-related responsibilities compared to private sector schedulers. This list was created from interviews with private sector health system administrators. Source: Choice site visits, interviews, 2015; Private sector health systems, interviews, 2015).

Individuals in 78 percent of scheduler group interviews[50] said that having so many responsibilities was a barrier to completing scheduling-related activities in a timely manner. For example, a scheduler may be attempting to schedule one patient on the phone when another patient walks up to the clinic front desk to check in. Before the scheduler can book the caller’s appointment, a desired date must be determined and entered into the system to enable wait time performance monitoring. Depending on the appointment selected, the scheduler also may be required to add the phone patient to the EWL, requiring the use of a different program outside of the VistA Scheduling package, introducing several extra steps. All this takes time, and keeps the in-person patient waiting. Additionally, schedulers and administrators report that schedulers are often asked to perform tasks that do not technically fall within their job descriptions, which can decrease the amount of available time for scheduling. To reduce the pressure on schedulers, one administrator met with providers and administrators in each clinic to detail which duties schedulers were and were not responsible for. Another strategy is to devise solutions to decrease their workload, such as increased use of call centers and patient self-scheduling (e.g., through online booking). A workforce assessment around productivity was not performed, and this may represent an opportunity in the future.

---

[50] Site visit scheduler group interviews, N=18 of 23 VAMCs

6.2.6 Wait Time Metrics Require Subjective Input and Are Not Currently Supplemented With Industry Standard Metrics

The use of the patient's desired date to measure wait times can result in additional process steps and less reliable data compared to private sector wait time measurement, which is typically captured directly from the system rather than entered by schedulers. The desired date has been a frequently studied issue at VHA, with at least five recent reports focusing on its potential subjectivity and ability to impact wait times.[51] Despite these concerns, the recent Choice Act requires patient preference, a concept similar to desired date, be incorporated into nationally established wait time goals of "not more than 30 days from the date on which a Veteran requests an appointment" ("Veterans Access," 2014). While a memo on the 2010 directive was released in 2015 and provides clarity on some of the subjective components of the desired date determination process ("Clarification", 2015), schedulers still are responsible for manually entering these data, leaving wait times information susceptible to interpretation and, perhaps more concerning, manipulation. Scheduler group interviews at 22 percent of VAMCs[52] specifically identified interpretation of desired date as a challenge.

Due to the data challenges discussed in Provider Availability Section 5 associated with the lack of a consolidated view of a provider's schedule, VHA has been limited in using other standard wait time metrics. In the private sector, a standard wait time measurement is the amount of time in days until the "third next available" appointment for each provider[53] (Brandenburg et al., 2015; "Third," n.d.; Kumar et al., 2014). According to the Institute of Medicine's 2015 *Transforming Health Care Scheduling and Access* and *Innovation and Best Practices in Health Care Scheduling* white paper, the third next available metric represents "a nationally reported measure against which organizations can monitor their performance… [that] is felt to represent a more accurate assessment of actual appointment availability and function of the system, rather than an opening due to a cancellation or acute event" (Brandenburg et al., 2015). Additionally, this measure removes the data capture responsibility from frontline schedulers, allowing them to focus solely on making the appointment. VHA currently can measure third next available but cannot view this metric accurately at the individual provider- or appointment type-level due to the existence of multiple provider profiles. Proposed technology changes described in Scheduling System Section 7 further describe how this might be addressed.

---

[51] Audit of Alleged Manipulation of Waiting Times in Veterans Integrated Service Network

[52] Site visit scheduler group interviews, N=5 of 23 VAMCs

[53] Third next available is tracked at the appointment sub-type level (e.g., new patient appointment, follow-up appointment, urgent appointment)

According to the IOM, other measures, such as patient experience or satisfaction with wait times, can also be considered (Brandenburg et al., 2015). Using patient experience or satisfaction to monitor access performance avoids desired date subjectivity and reliability issue while also monitoring an important patient-centric outcome. These metrics also would likely not require changes to the current technology system.

6.2.7 Lack of Accountability and Resources for Managing Patient Access and Scheduling Practices at the Facility Level may Limit the Spread and use of Best Practices

Ownership of access-related responsibilities across site visit facilities varied. The roles of schedulers, clinic administrators, providers and facility leaders are not always well-defined when it comes to the management of access (waitlists and wait times) and scheduling practices. Several VAMCs had a patient access champion, other facilities relied on Health Administration Service (HAS), and for others access was a clinic-level responsibility. Within many facilities, there was often no single point of accountability. This gap is in the process of being addressed through the creation of a clinic practice management model. However, as discussed in section 6.3, the program may not have additional FTEs to manage the large list of new responsibilities, and tools and processes have not yet been developed to execute many of these duties. As such, consistent implementation may be difficult.

In the private sector, health systems often provide administrative and analytical support to frontline providers and clinic administrators to help manage access. Kaiser Permanente and Cleveland Clinic both provide clinics with central consulting, informatics, and analytical support to aid in access management. This assists the frontline clinical leaders and administrators responsible for managing backlogs (Kaiser interview, 2015; Cleveland Clinic interview, 2015). One example of regular access management the IHI recommends is team "huddles," including clinic providers, staff and administrators, at the beginning of each day ("Use Regular Huddles and Staff Meetings to Plan Production and Optimize Team Communication," n.d.). These huddles help clarify provider and staff availability for the day, identify patients requiring extra time and assistance, and deal with any last-minute schedule changes such as patient cancellations (Stewart & Johnson, 2007). The IHI further recommends weekly or monthly production planning meetings with providers and administrators to help identify and address potential backlog sources. These access management meetings require provider involvement and buy-in. By replicating private sector access management accountability practices and resources, VHA may have an opportunity to improve management of existing resources and generate better patient access to care.

6.3 Recommendations

As part of this assessment, we reviewed 37 reports dating back to 1999. Over half (19 of the 37, or 51 percent) of the reports made specific recommendations on the scheduling process itself. (For additional detail on these reports, see Appendix D.3). These recommendations predominantly focused on four main areas:

- **Access management and wait lists:** Six of the 19 reports (32 percent) made recommendations to either standardize wait list management practices, improve monitoring of lists, or implement national review. These recommendations stem from findings of significant variability in wait list management practices across facilities, especially with regard to accountability.
- **Scheduling policy:** Six of the 19 reports (32 percent) recommended improving the consistency of scheduling policy implementation and compliance. These reports focus largely on the inconsistent compliance across facilities with desired date policy. The 2014 VHA Access Audit recommended revising the scheduling policy itself to reduce ambiguity and improve compliance ("Access Audit," 2014). Per the report, the scheduling process has evolved over time into an “overly complicated” system with a “high potential to create confusion among scheduling clerks and front-line supervisors.” The report subsequently calls for a revision of the scheduling policy.
- **Consults:** 11 of 19 reports (58 percent) recommended improving the consult process. The recommendations included improving coordination of care, standardizing the process of addressing unresolved consults, increasing consistency in the consult process across facilities and minimizing the screening process. A consistent theme was the need to improve the consult process from the patient perspective by ensuring patients have strong handoffs from primary care to specialists and from specialists back to primary care.
- **Patient reminders:** One of the 19 reports (5 percent) recommended improved patient reminders through identification and best practice sharing. The key driver for this recommendation was inconsistent and variable use of reminders.

These recommendations are all consistent with the opportunities suggested in our findings. According to interviews with the ACAP office, the group responsible for defining, standardizing and coordinating system-wide administrative clinic operations and management, a number of initiatives are under way in this area that may not yet have presented themselves in the field, including:

- **Efforts related to access management and wait lists:** As mentioned in Provider Availability Section 5, VHA is creating a clinic practice management model with both facility- and clinic-level administrative and clinical leadership roles focused on access-related areas. Initiative leaders reported that this model and the associated training program will be implemented in 2015 and 2016, in compliance with the Choice Act. Wait list management, as well as data validation, patient experience, capacity management, productivity, and clinic flow/throughput are planned to be included as part of their responsibilities for primary care, medical and surgical specialty care, and mental health. On paper, the pace and coverage, both of which are dictated by the Choice Act legislation, are impressive. As discussed above, though, the lack of additional clinic- and facility-level FTEs to manage the large number of new responsibilities, combined with a limited number of existing tools and processes, suggests execution may be difficult.

To facilitate sharing of best practices, ACAP has started a Community of Practice program. Specifically, each facility is asked to provide a representative for the system-wide “Community of Practice,” an informal organization through which facilities can learn from one another through a group mailing list and monthly conference call. Currently, there are three Communities of Practice, two of which are in development: clinic profile managers, scheduling leads (in development), and group practice managers (in development and dependent on clinic management model initiative described above).

- **Efforts to clarify scheduling policy**: An update to the 2010 VHA outpatient scheduling directive was released on May 18, 2015. The update provides clarification on multiple topics within the national scheduling policy, including wait time reference points (for example, desired date, return to care date) and list eligibility (like recall and EWL), to ensure more standardized data capture. This update was expected to be released in 2014 but was delayed multiple times due to need for approval from multiple organizations within VHA, according to our interviews with ACAP. Along with the new scheduling policy, ACAP reports that a scheduling handbook will be released, but the draft is still under review. ACAP also held a webinar to “train the trainer” on these updates in early July 2015 (“Clarification” Webinar, 2015).
- **Efforts to standardize consult process**: VHA is involved with multiple initiatives to improve the consult process. Two of the more prominent initiatives are ACAP’s development of national consult standard operating procedures and handbook and ACAP’s creation of a standard consult audit process in conjunction with the Compliance and Business Integrity (CBI) office. These are all currently in draft form. VHA has disseminated these drafts and also embarked on a VISN training program that was underway during the period covered by this assessment (“VHA Consult”; “VISN”, 2015).
- **Efforts to improve patient reminder strategy**: Several ACAP initiatives aimed at improving patient appointment adherence are in progress, including a national group researching missed opportunity rates; two separate initiatives checking validity of recall system through evidence review and pilots; and a one-facility pilot of text messaging patient reminders.
- **VistA Scheduling software improvements**: As discussed in detail in the Scheduling System Section 7, VistA Scheduling Enhancements (VSE) and mobile applications are two near-term scheduling improvement programs that will address some of the software ease of use issues, including the lack of a “single screen” view of a provider’s schedule and multiple unintegrated waitlists.

If successful, these initiatives could likely result in more consistent scheduling policy implementation across facilities and improved sharing of best practices. The access-focused roles at facilities will be especially helpful in standardizing the use of existing scheduling tools and processes. Implementing evidence-based patient appointment reminders should help reduce missed opportunity variability. Standardizing consult process operating procedures and auditing should similarly reduce unnecessary variation across facilities.

However, gaps may exist in the above initiatives.

Implementation gaps: As discussed in Provider Availability Section 5, the clinic manager roles and training program may not be appropriately resourced and focused to ensure that these roles can handle the diverse range of duties that will be required. Simply adding clinic management expectations to facilities without providing dedicated staffing, processes, and tools may inhibit the effectiveness of these new clinic management roles.

Scope gaps: Several scope gaps may exist in VHA's current initiatives to improve the scheduling process. First, the initiatives may not address the lack of common scheduling practices, such as overbooking to the missed opportunity rate or the use of standard, patient-friendly communications. The clinic practice management model includes access management responsibilities, but ensuring the implementation of specific industry-standard scheduling practices, or detail on what those processes are, has not been outlined in preliminary training curriculum materials developed for either the group practice manager or clinic manager positions ("Clinic Management," 2015). Second, these initiatives may not address the lack of top-down guidance on scheduling process implementation. The recent national policy update does not provide any additional guidance on how to schedule or which processes/tools to utilize (for example, care coordination agreements, missed opportunity strategies). Third, best practice sharing between facilities and VISNs is only partially addressed by the creation of Communities of Practice, as there is no mechanism to ensure that best practices surfaced in this forum are actually implemented.

To address these gaps, VHA should consider the following recommendations:

6.3.1 More Effectively Implement Policy by Providing Supporting Tools and Processes, Utilizing Technology to Automate Tasks, and Creating National Enablers for Consult Process

- **Continue to support the consistent implementation of the scheduling process through VHA dissemination of tools and standard operating procedures (SOPs):** With the recent scheduling policy update, VHA is in the early stages of disseminating and reinforcing the use of the tools and processes necessary to ensure consistent implementation of scheduling management across facilities. Consistent with Assessment L's recommendation to increase coordination across policy (VHA Central Office [VHACO] program office 10P) and operations (VHACO program office 10N), all policy guidance should be reviewed, approved, and prioritized by operations before being released to the field. Reviews should ensure that policies are feasible to implement, have necessary resources to execute, and a proper feedback mechanism to indicate whether the field is able to successfully act on guidance. Policies should not be overly prescriptive but instead provide operational guidance and support to achieve clear, measurable outcomes. Necessary resources include tools (e.g., SOPs and protocols) to ensure consistent scheduling practices (e.g., overbooking) and outcomes (e.g., utilization of provider time) across facilities. These tools should draw on already existing local best practice processes and tools, such as the no show predictor model. VHA should also examine resource needs (e.g., regional best practice teams, dedicated VHACO personnel) for continued development of these tools and processes.

- **Improve scheduler efficiency and policy implementation consistency by automating as many VHA-specific tasks as possible:** Schedulers are hampered by a difficult-to-use scheduling system and the requirement to manually carry out several VHA-specific responsibilities. As covered in detail in Provider Availability Section 5 and Scheduling System Section 7, VHA should update its scheduling system design to show all of a provider's available appointments in one view and provide accurate visibility into the third next available wait time metric. Third next available is recommended by the IOM as industry standard and would eliminate data reliability concerns associated with desired date subjectivity. This recommendation would require moving to a consolidated view of a provider's schedule, as mentioned in Provider Availability and the Scheduling System sections. Similarly, VHA should automate many of the manual VHA-specific processes, including wait list addition, removal, and prioritization. These improvements will require modifications to the scheduling software package, but should ultimately result in improved scheduler efficiency as well as more consistent policy implementation across clinics and facilities.
- **Develop system-wide care coordination agreements and finalize operating procedures to standardize consult process:** VHA should create VHA-wide care coordination agreements between Primary Care and all common specialties/subspecialties that encourage consistency across facilities, where possible. These agreements should include a well-defined list of appropriate patients for automatic or expedited approval. VHA should strongly encourage Primary Care scheduling (either by PCP or scheduler) of specialist appointments before the patient leaves the clinic for pre-approved problem types. To enable this, VHA should define a clinic manager role to monitor the consult process and ensure timely and coordinated handoffs. These recommendations should result in more timely access to specialty care, improved care coordination, reduced provider time waste and more accountable process management.

6.3.2 Improve and Standardize Facility Level Scheduling Practices to Ensure Utilization of Existing Appointment Supply and Consistent Patient Experience

- **Empower clinics to implement consistent scheduling best practices:** VAMCs and VISNs should be held accountable for dissemination and implementation of nationally provided tools and processes per 6.3.1. VHA should ensure that clinics are aware of scheduling practices used in the private sector to increase access (e.g., VHA could guide clinics on how to appropriately overbook to a steady state missed opportunity level). Beyond awareness, empowering clinics to implement these practices will require sufficient clinic management resourcing, adequate scheduler staffing levels, and provider education on why certain practices (for example, overbooking) may be necessary to provide access.

- **Modify recall process timeline to make recall process more patient-friendly:** The timing of the reminder system should be changed. Specifically, reminders to book appointments should be informed by recent pilots (Prentice, "Appointment Age", 2015) and could be sent further in advance (for example, reminders sent at least six to eight weeks in advance instead of two to four weeks) or more frequently to ensure adequate availability from which patients can choose appointments. Patient-friendly communication methods, as described in the recommendation above, should be employed. Accountability should be assigned at each facility to monitor the recall list and ensure delinquent recall list patients are not lost in the process. VHA should also consider extending the scheduling horizon to reduce the number of patients requiring recall. These recommendations, paired with improved patient reminder systems and better provider leave submission operations, should improve ease of patient navigation, reduce loss of patients in the system, decrease scheduler workload, and improve process accountability.
- **VAMCs should adhere to a standard appointment reminder process, including use of patient-friendly methods and timing:** VHA should develop an evidence-based standard appointment reminder process (like robocall seven days ahead and live call three days ahead for all specialties) that incorporates individual patient preference (for example time of day and method). Clinics should be encouraged to utilize live calls to those patients identified as high risk by the no show predictive modeling tool. The use of email and/or text message reminders should be offered to Veterans who choose to opt in. The communications content should be standardized across clinics with clear, patient-friendly language. VHA also should ensure Veterans can easily manage their appointments (for example, online cancellations, dedicated cancellation line) so that they choose to cancel instead of not attending their appointments. These recommendations should result in improved use of provider time and better patient access.

6.3.3 Create and Reinforce a Strong Practice Manager Role to Ensure Implementation and Accountability

- **Establish standard expectations for clinic- and facility-level point people managing access and their roles/responsibilities:** Since VHA appears to lack coordination between its policy and operations program offices, VHA should consider a single point of responsibility in each facility for managing backlogs and disseminating policy to enable a more consistent delivery mechanism across facilities. As discussed in depth in Provider Availability Section 5 of this report, VHA currently is taking steps toward addressing this by creating a facility-level group practice manager role and possibly service-level roles as well that are focused on access. This program should be scoped to ensure appropriate resources (for example, tools and processes), are in place to enable successful implementation of activities.
- **Ensure facilities have sufficient staffing to implement access management model:** Perhaps as important as assigning ownership of access management responsibilities, VHA should provide sufficient staffing to support this increased workload. Recruiting, which was cited as a key issue in Assessment L's report as well as in VHA's Blueprint for

Excellence as a critical challenge, will be important to ensure all positions are filled by capable individuals. Even with adequate tools and processes, managing access on a daily basis is a time-intensive duty.

7 Scheduling System

7.1 Context & Approach

VHA currently uses the Veterans Health Administration Systems and Technology Architecture (VistA) as the architecture backbone for its IT system. VistA supports major IT modules (like scheduling and medical records) as well as performance management. VistA uses Massachusetts General Hospital Utility Multi-Programming System (MUMPS) programming language, a code developed in 1966. MUMPS is a common software language in the health care space due to its ability to efficiently store and query data with many attributes (for example, encounter, procedure) by placing data in multi-dimensional arrays. Other systems use MUMPS in their platforms (Schwarz, 2010; O'Kane, 2014; Congdon 2014).

The VistA electronic medical record (EMR) has received accolades in the health care industry (Billings, 2012). In a 2014 survey across 25 specialties conducted by the American Academy of Family Physicians and Medscape, 18,575 physicians rated VistA as the top EMR, beating out popular commercial systems. Criteria included ease of use, overall satisfaction, and usefulness as a clinical tool.

In contrast, issues with the VistA Scheduling application have been the focus of several recent reviews, including the OIG 2014 report on Phoenix. Built in the early 1980s, VistA Scheduling has received criticism because it "lacks any meaningful analytical capabilities" and requires "manual workarounds" for schedulers ("Opportunities," 2014). VA's Chief Technology Officer shared with Politico that "[VistA] scheduling [is] a serious problem" (Gold, 2014). Limitations partially stem from the fact that developers did not design the scheduling system as an outpatient scheduling system, but rather for inpatient care ("MASS Business Blueprint," 2014). Schedulers use VistA Scheduling for creating and managing appointments at all VHA locations except the Richard L. Roudebush VAMC, in Indianapolis, Indiana. Roudebush purchased a commercial-off-the-shelf (COTS) scheduling solution, Resource Management System (RMS),[54] from Unibased System Architect in 2002.

VHA has made past attempts to replace the VistA Scheduling System. In Fiscal year 2002, VHA determined the need to replace VistA Scheduling. VA OI&T selected a proposal to replace VistA Scheduling with a COTS software program. However, in 2009, the project was terminated because the code was "not viable" (Department of Veterans Affairs, "RSA," 2009). VA OI&T/ VHA have several current initiatives in progress to address scheduling system enhancements:

VistA Scheduling Enhancements (VSE):

- Functions as temporary system solution to address scheduler usability issues until more comprehensive system is developed
- Provides graphical user interface (GUI) that sits on top of the existing VistA Scheduling System

---

[54] Now called Streamline Health Looking Glass

- Maintains previous reporting and inter-program interfaces
- Has three original components of VSE1, VSE2, and VSE3 that provide "aggregated view of clinic profile scheduling grids, a single queue of requests lists, and a resource management dashboard" for each program respectively ("VistA 4," 2014).
- Includes the VSE4 component to address numerous VistA Scheduling issues that changes had not yet addressed, including fixing issues that developers must address in order to implement VSE1, VSE2, and VSE3 (ACAP, interviews, 2015).
- Is in the initial operational capability (IOC) phase across pilot sites as of June 2015 for VSE1, VSE2, and VSE3 (ACAP, interviews, 2015) with roll-out expected toward the end of the 2015 (ACAP, interviews, 2015)

Veteran Appointment Request (VAR) Mobile Application: Separately, the VHA Office of Connected Health is currently in the IOC phase with a patient-facing mobile application, VAR, at the Washington D.C. VAMC. The first part of VAR, VAR1, would allow patients to request primary care and mental health appointments. The second piece of VAR, VAR2, would allow patients to directly schedule a primary care appointment using their mobile devices (Connected Health, interview, 2015).

MASS Replacement System: In November 2014, VA OI&T released a request for proposal, called the Medical Appointment Scheduling System (MASS), for a commercial-off-the-shelf (COTS) scheduling system, detailed in the MASS Business Blueprint. MASS would completely replace the current VistA Scheduling System as well as VSE and VAR, with national implementation starting in 2018. The maximum total value a vendor can charge is $690 million. The selected bidder would be tasked with providing a system that delivers core capabilities (like the creation of a resource-based scheduling system) to all VHA medical facilities within the first two years of the contract, and other capabilities (for example, patient self-scheduling) that would be rolled out over the following three years ("Performance Work," 2014). The MASS Business Blueprint, a document developed in 2014, outlines the desired system capabilities, but the final list of capabilities required and the scale of MASS may depend on the success or failure of the intermediate VSE and VAR solutions (VAR also will offer some patient scheduling capabilities, for example). As of June 2015, according to the ACAP office, the procurement process is still underway. Post selection, its implementation would rely on Congressional allocation and approval of its budget.

Within the Choice Act language for assessment E, we were asked to "assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions [sic] with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solution." We were also asked to recommend any system changes required for measuring wait times, monitoring provider availability, and providing Veterans with their own ability to schedule appointments.

To address the request for an assessment of cost effectiveness and feasibility, we defined "feasibility" as VA OI&T's ability to purchase a scheduling system with the desired features, given that they are pursuing MASS. We defined "cost effectiveness" to be the ability to implement the desired scheduling system features on time with a demonstrated net benefit, including improvement to Veteran experience. To complete this area of the assessment, we relied on specific data sources, including:

- Interviews regarding VSE, mobile applications, or MASS with individuals at VA central office across three departments (Access Clinic Administration Program (ACAP), Office of Information & Technology (OI&T), and Connected Health)
- Interviews with 10 private health system CIOs and executives with deep experience related to procuring or implementing scheduling system products
- Review of reports and assessments on past implementation efforts

As discussed in section 2.4 and in accordance with *Federal Acquisition Regulation Subpart 15.3 Source Selection*, U.S. Government rules require the sequestration of individuals involved in the procurement process. Individuals involved with the MASS procurement signed a non-disclosure form that included language on "[not discussing] evaluation or source selection matters, including proprietary proposal information, with any unauthorized individuals (including Government personnel), even after the announcement of the successful contractor, unless authorized by proper authority" ("MASS RFP," 2014). As a result, details on MASS in this section relied on interviews with VHA individuals knowledgeable about MASS who were not sequestered, as well as publicly available information. This limited our ability to assess the cost effectiveness and feasibility of the planned procurement based on what is known currently within VA and VHA. We also did not complete an independent verification of any potential costs due to the sequestration.

7.2 Findings

7.2.1 VistA Scheduling Allows Basic Function of Booking an Appointment; However, Broader System Limitations Create Operational Challenges for Schedulers and Administrators

One-on-one observations of 31 schedulers consistently showed that VistA Scheduling provides the basic functionality to schedule appointments (Choice site visits, interviews, 2015). This is consistent with previous reports on VHA's scheduling system, including the most recent report from the Northern Virginia Technology Council in Fall 2014, which articulated that VistA Scheduling "fundamentally does what it's designed to do: it allows the scheduling clerk at the clinic or call center to schedule…an initial or follow up appointment" (p. 34). For the most part, schedulers appeared to have a reasonable level of comfort with the system once they had a chance to learn how to use it, even though many did not have any other scheduling system experience against which to compare VistA.

Beyond the basic appointment booking function, a number of interviews cited broader system issues. The most commonly raised issues included:

Usability for administrators (raised in 48 percent of site visit clinic administrator group interviews[55])

- Lacks an understanding of aggregate and provider-level appointment supply relative to demand due to system design choices (30 percent of administrator IT issues raised in group interviews[56])
- Does not automate clinic and facility-specific practices (19 percent of administrator IT issues raised in group interviews[57])
- Lacks a consolidated view of unmet demand, due to multiple wait lists and scheduling queues that are not typically aggregated in a user-friendly way (19 percent of administrator IT issues raised in group interviews[58])
- Other usability issues, such as unfriendly interface and lack of integration with the Computerized Patient Record System (CPRS) (32 percent of administrator IT issues raised in group interviews[59])

Usability for patients:

- Lacks functionality to support patient self-scheduling, which could increase convenience for patients and reduce workload for frontline schedulers (Choice site visits, interviews, 2015)

7.2.1.1 System Constraints do not Allow Industry Standard Levels of Supply/Demand and Performance Management, Including Wait Time Measurement

As mentioned in the two previous sections of this report, there are ways to improve scheduling without changes to the VistA Scheduling application. However, major limitations exist around monitoring and managing provider supply and wait times. This finding is consistent with the Northern Virginia Technology Council's report, which found that "the current system lacks any meaningful analytical capabilities" and VistA was "neither intended nor designed to be used as a measurement tool," and thus presents challenges when performance data is required ("Opportunities," 2014).

One common VistA Scheduling System challenge cited by administrators on site visits was the inability to accurately aggregate data to calculate metrics around total supply and provider performance. One AO interviewed on a site visit shared "It's difficult to look at the schedule to see how productive providers are." Further, because providers are not attached to an appointment until after a patient checks in and out, any appointments not resulting in a visit (like missed opportunities and cancellations, for example) are not able to be tracked for specific providers without tedious, manual review ("Access Audit," 2014; "Opportunities," 2014). In the words of a clinic administrator, describing the current system's limitations on generating performance metrics, "no one is providing us with the software and tools to make us successful."

---

[55] Site visit clinic administrator group interviews, N=11 of 23 VAMCs

[56] Site visit clinic administrator group interviews, 14 of 47 total issues identified

[57] Site visit clinic administrator group interviews, 9 of 47 total issues identified

[58] Site visit clinic administrator group interviews, 9 of 47 total issues identified

[59] Site visit clinic administrator group interviews, 15 of 47 total issues identified

In addition to challenges with monitoring supply and demand, VHA's current system limits its ability to accurately measure patient wait times using metrics beyond desired date, return to clinic, or create date. For example, as noted in the VHA Access Audit, this desired date is not used outside of the VHA system and is "difficult to reconcile against more accepted practices such as…using a 'return to clinic' interval requested by providers" ("Access Audit," 2014). Because of potentially overlapping clinic profiles, the calculation of the industry-standard metric for wait time, third next available appointment (Brandenburg et al., 2015), is faulty.

7.2.1.2 VistA Scheduling Does not Automate Several Scheduling Processes nor Simplify Managing Wait Lists

As stated in the MASS Business Blueprint, "VistA Scheduling was built in the early 80s with few embedded clinical delivery business rules" ("MASS Business Blueprint," 2014). Certain private sector providers build automation into their scheduling system and mobile apps to "eliminate dependence on individual diligence or memory" (Brandenburg et al., 2015). As VHA scheduling operational processes are complex and variable, it is particularly challenging to execute standard practices without a scheduling system that automates many of those practices. Because the current system lacks robust automation capabilities, there are likely greater inconsistencies across clinics (like prioritization of removing patients from waitlists, timing of patient appointment reminders, and handling of no-shows), and more onerous training requirements. It is also very challenging to fix the scheduling system to improve functionality.

One scheduler in Indianapolis who used the COTS RMS scheduling system, which supports the automation of operational processes (for example, ordering necessary lab work before an appointment), said "with RMS, you don't have to memorize [things about each provider]…you could train someone [on just the tool] and have them making appointments at the end of the day."

Automation of operational processes is a component of most enterprise scheduling products provided by major EMR and scheduling system vendors, according to the private sector executives interviewed (2015). The MASS Business Blueprint envisions that "scheduling [will be] simplified because business rules [will be] captured during setup and used throughout the scheduling processes" ("MASS Business Blueprint," 2014). This decreases the necessity of understanding complex national policies or various preferences across clinics because developers automatically code some practices into the process during setup. Additionally, it could enable increased standardization of scheduling functions at the facility or national level because clinic-specific rules (for example, overbooking is preferred during the pre-lunch session for one provider, another provider requires that all new patients complete lab work) could be programmed automatically into the system instead of memorized. Thus, a scheduler could book an appointment in any clinic, as long as the system automated clinic-specific differences.

As mentioned in Scheduling Process Section 6, one-on-one observations with schedulers during site visits indicated that using waitlists in VistA creates challenges for schedulers because they lack an automated way to filter waitlists by criteria that are relevant (like clinical need of the patient, for example). This may explain in part the VHA Access Audit's findings that eight percent of scheduling staff were using alternatives to the Electronic Wait List (EWL) ("Access Audit," 2014). According to the 2015 IOM report *Innovation and Best Practices in Health Care Scheduling*, manually recording waitlist information leads to inconsistencies in the ways that schedulers review the wait list and is against scheduling directive policy (Brandenburg et al., 2015; VHA 2010-027).

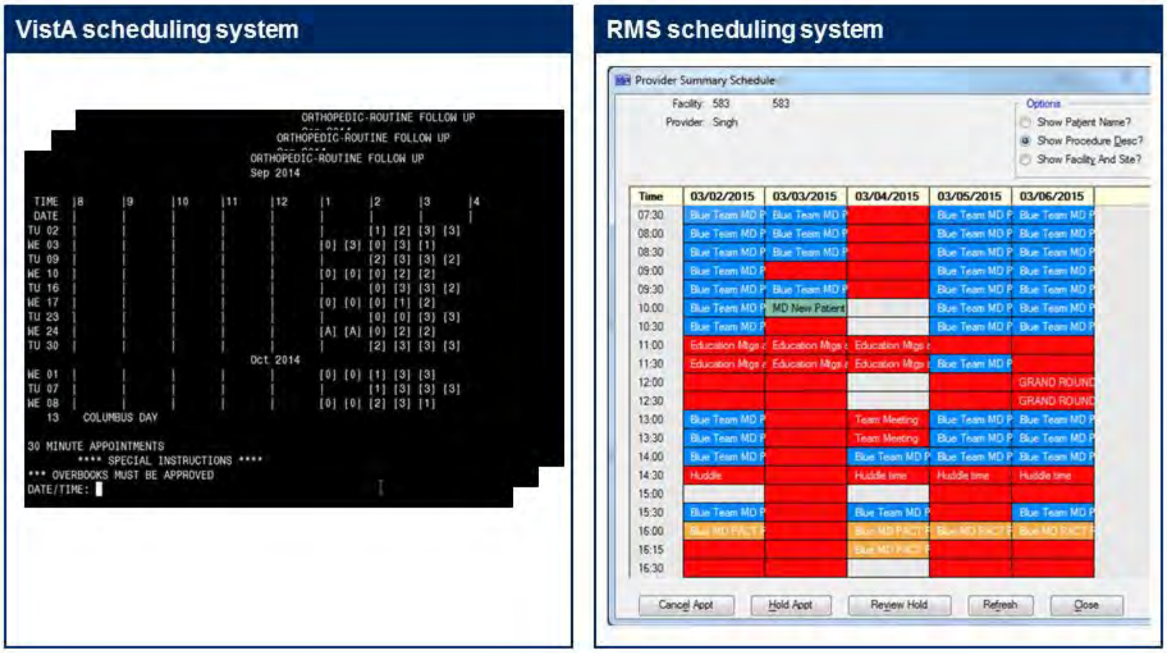
Clinic administrators also struggle with the current waitlists because there is not a way to consolidate them in order to measure patient demand or manage allocation of tasks within the clinic (Choice Act site visits, interviews, 2015). As detailed in Scheduling Process Section 6 of this report, waitlist challenges do not commonly exist in the private sector, as backlogs, and thus waitlists, are rare.

7.2.1.3 System Does not Offer Schedulers a User-Friendly way of Viewing Provider Availability

The way VistA Scheduling displays providers' schedules presents challenge for schedulers searching for available appointments. Schedulers are unable to look at one screen to see a provider's overall schedule if that provider operates across multiple clinic profiles. The current system requires a scheduler to "roll and scroll" through multiple screens to search just one day of a provider's schedule, which becomes even more tedious with multiple days or multiple providers. According to the 10 private health system leaders interviewed specifically on scheduling system technology as part of this assessment, very few scheduling systems in the U.S. are this difficult to search.

In contrast, schedulers using the RMS system at the Indianapolis VAMC with a GUI interface did not have to click through multiple screens as RMS, unlike VistA scheduling, does not disperse provider schedules across multiple profiles. The following figure displays what a scheduler sees in each system:

Figure 7-1. Scheduling System Comparison



VistA scheduling system

```
                                 ORTHOPEDIC-ROUTINE FOLLOW UP
                              ORTHOPEDIC-ROUTINE FOLLOW UP
                           ORTHOPEDIC-ROUTINE FOLLOW UP
                           Sep 2014

 TIME  |8      |9      |10     |11     |12     |1      |2      |3      |4
 DATE  |       |       |       |       |       |       |       |       |
TU 02  |       |       |       |       |       |       [1] [2] [3] [3]
WE 03  |       |       |       |       |       [0] [3] [0] [3] [1]
TU 09  |       |       |       |       |       |       [2] [3] [3] [2]
WE 10  |       |       |       |       |       [0] [0] [0] [2] [2]
TU 16  |       |       |       |       |       |       [0] [3] [3] [2]
WE 17  |       |       |       |       |       [0] [0] [0] [1] [2]
TU 23  |       |       |       |       |       |       [0] [0] [3] [3]
WE 24  |       |       |       |       |       [A] [A] [0] [2] [2]
TU 30  |       |       |       |       |       |       [2] [3] [3] [3]
                           Oct 2014
WE 01  |       |       |       |       |       [0] [0] [1] [3] [3]
TU 07  |       |       |       |       |       |       [1] [3] [3] [3]
WE 08  |       |       |       |       |       [0] [0] [2] [3] [1]
   13    COLUMBUS DAY

30 MINUTE APPOINTMENTS
        **** SPECIAL INSTRUCTIONS ****
*** OVERBOOKS MUST BE APPROVED
DATE/TIME: █
```

RMS scheduling system

Provider Summary Schedule

Facility: 583 583
Provider: Singh

Options
○ Show Patient Name?
● Show Procedure Desc?
○ Show Facility And Site?

Time	03/02/2015	03/03/2015	03/04/2015	03/05/2015	03/06/2015
07:30	Blue Team MD P	Blue Team MD P		Blue Team MD P	Blue Team MD P
08:00	Blue Team MD P	Blue Team MD P		Blue Team MD P	Blue Team MD P
08:30	Blue Team MD P	Blue Team MD P		Blue Team MD P	Blue Team MD P
09:00	Blue Team MD P			Blue Team MD P	Blue Team MD P
09:30	Blue Team MD P	Blue Team MD P		Blue Team MD P	Blue Team MD P
10:00	Blue Team MD P	MD New Patient		Blue Team MD P	Blue Team MD P
10:30	Blue Team MD P			Blue Team MD P	Blue Team MD P
11:00	Education Mtgs &	Education Mtgs &	Education Mtgs &		
11:30	Education Mtgs &	Education Mtgs &	Education Mtgs &	Blue Team MD P	
12:00					GRAND ROUND
12:30					GRAND ROUND
13:00	Blue Team MD P		Team Meeting	Blue Team MD P	Blue Team MD P
13:30	Blue Team MD P		Team Meeting	Blue Team MD P	Blue Team MD P
14:00	Blue Team MD P		Blue Team MD P	Blue Team MD P	Blue Team MD P
14:30	Huddle		Huddle time	Huddle time	Huddle time
15:00					
15:30	Blue Team MD P		Blue Team MD P		Blue Team MD P
16:00	Blue MD PACT F		Blue MD PACT F	Blue MD PACT F	Blue MD PACT F
16:15			Blue MD PACT F		
16:30					

Figure 7-1 compares an individual provider's schedule in VistA to RMS. In the VistA system, the provider's schedule for one day is displayed using numerals and is only shown partially on one screen because of multiple clinic profiles. In RMS, the scheduling system displays an entire schedule in one combined calendar with different colors representing different types of appointments through a GUI interface. Available slots are easy to see, and the schedule combines different clinic profiles. Sources: ACAP office webinar (left, "Making Appt v2_7-23-2014 1.51.07pm", accessed June 25, 2015) and Indianapolis site visit screen shot (right).

In addition to streamlining the viewing of appointments, RMS allows the schedulers to search provider availability for a specific appointment type based on configured rules. Most schedulers at the Indianapolis VAMC have not used the VistA Scheduling System because the Indianapolis VAMC implemented RMS in 2002. However, in contrast to other schedulers, they did not report that finding an available appointment took a long time. The shorter time required to find availability could result in shorter hold times on the phone for patients booking an appointment or waiting in clinic to schedule. We spoke with one scheduler who had recently transferred from another VAMC that used VistA Scheduling, allowing her to compare the two systems. She said, "I can view [the doctor's] schedule all right here [on this one screen]. It is just like [Microsoft] Outlook and much more intuitive."

7.2.2 Interim Scheduling System Solutions Will Address Some Usability Challenges, But Will not Comprehensively Address Root Cause Issues

According to VHA leaders, VHA's two near-term scheduling improvement programs, VSE and VAR, will address the previously noted scheduler and patient usability challenges captured below:

Usability for schedulers

- "Single-screen" view of a provider's schedule due to system architecture choices that have led to multiple clinic profiles as well as a scheduling system (that is, VistA) that does not provide an aggregated view across these profiles. VistA also does not allow for a singular schedule beyond eight hours nor across two locations.
- An easy-to-use cancellation list, due to multiple wait lists and scheduling queues that are not typically aggregated.

Usability for patients

- Functionality to support patient self-scheduling, which could increase convenience for patients and reduce workload for frontline schedulers.

However, interim solutions will not address the following challenges with the current system:

Usability for administrators

- Ability to support an understanding of aggregate and provider-level appointment supply relative to demand due to system design choices.
- Automated clinic and facility-specific practices, making it a manual process.
- Consolidated view of demand, due to multiple wait lists and scheduling queues that are not typically aggregated to measure overall demand.

Collectively, the main features of VSE and VAR will address the major issues of scheduler and patient usability. However, these solutions are currently limited to only two specialties, primary care and mental health. Primary care was chosen because it is a high volume specialty and tends to have more standard clinic profiles. Mental health was also chosen because it is a high volume specialty and because there are many different profiles that schedulers must look at. According to VHA leaders, VSE will introduce changes that will "ease the burden on the scheduler" by providing users with an integrated provider calendar view, a centralized waitlist management tool, and a dashboard that tracks appointment "requests" as well as completed appointments. However, VSE, like RMS in Indianapolis, is still constrained by clinic profiles. As a result, VSE cannot measure aggregated appointment supply more accurately than in current state.

In addition, VHA also has efforts to provide additional patient friendly-scheduling features through VAR using the same programming code as My Health*e*Vet (Connected Health, interview, 2015). Like the other VA mobile applications, VAR will be "stand alone" and not built using the VistA Scheduling infrastructure (Frisbee, 2015). This infrastructure will enable it to be integrated with future scheduling systems. Through VAR, patients can request or schedule an appointment, but only in primary care or mental health. Capabilities exist only for patients requesting an appointment with a provider previously visited and for patients who have registered at the VAR website. Offering VAR to patients for all specialties will be challenging because any patient-facing application still has to deal with the current limitations of VistA Scheduling (like multiple clinic profiles) and VAR will require another work queue for schedulers to manage. According to interviews with the Connected Health office, physicians are generally supportive of the software, and the team piloting the software believes it will increase patient satisfaction scores which are tracked in the national Survey of Healthcare Experience of Patient (SHEP) survey.

7.2.3 MASS Plan is Intended to Address Major Scheduling Capability Gaps Highlighted in This Report Through a COTS Product, Similar to Several Private Sector Providers

Overall, previously mentioned interim improvements (VSE, VAR) will provide a bridge between the current VistA scheduling process and a future, more comprehensive solution. MASS is under consideration to address this more comprehensive need with a COTS product.

Feature requirements listed in the MASS Business Blueprint include the following (See Appendix E.1 for detailed listing of MASS requirements):

- VistA reporting and coding must continue to support non-scheduling business processes, as it currently does today, so that all data extracts continue to support other non-scheduling processes without disruption.
- Capture of the patient preferred appointment date metric must be consistent with the national scheduling directive.
- System must support proactive resource management-based scheduling that schedules all resources, including staff, facilities, rooms, and equipment.
- Patients must be able to self-schedule and manage their engagement through multiple avenues, such as mobile applications and the web.
- System must create a single view of the patient across the enterprise so that VHA can maintain a coherent view of the patient across facilities.
- Interface must enable efficient and error-free scheduling of resources.

Over 90 percent of all U.S. hospitals have a COTS scheduling product, including 14 of the 15 U.S. News and World Report top hospitals and eight out of the 10 largest hospital systems in the U.S. (“Healthcare,” 2015). This high use of COTS scheduling products is partly because health care systems are increasingly purchasing integrated electronic medical records (EMR) with most or all including scheduling capability. Most EMR implementations include a suite of products from a single vendor that better enable integration between programs.

According to the health system leaders interviewed for this assessment, most of the desired features in MASS are common in COTS systems. If paired with changes to the data capture functionality for location and stop code (which VistA currently uses multiple provider schedules to do), a COTS scheduling system can likely address most of the major usability pain points highlighted in this report. However, because waitlists are not common outside of VHA, it is not possible to evaluate how a COTS system can address challenges related to this topic.

7.2.4 Further Study is Required to Determine Whether the MASS Plan is Feasible and Cost Effective

It appears to be feasible for VA to obtain a product with the scheduling features it desires. However, our access to the leaders of the procurement has limited our ability to assess overall feasibility and cost effectiveness in a definitive manner. While significant documentation about MASS is publically available, including its request for quotation (RFQ) to vendors and its requirements articulated in the MASS Blueprint, we have not been able to complete or verify the existence of a robust Analysis of Alternatives (AOA). OI&T and the Office of Enterprise Development completed an assessment of alternatives for a new scheduling system before the MASS effort in 2009 ("Healthevet," 2009). However, no public documents exist to confirm that VA has made any effort to refresh this cost comparison for MASS.

A complete AOA would compare the financial and non-financial costs and benefits of both MASS and all of its alternatives, including using locally sourced COTS solutions at each facility, internally developing a custom solution, and the status quo (that is, no system changes). Costs components should include all total costs of ownership including system costs, maintenance costs, and implementation costs as well as the time required to implement. Benefits considered should include, but not be limited to, financial savings, operational improvements on the scheduling process, and patient satisfaction. Further, implementation and maintenance cost estimates should be risk-adjusted based on past VA efforts to reflect the most likely cost figures (see Assessment H report).

7.2.5 VA's Past IT Implementation Successes and Failures Demonstrate That a Feasible and Cost Effective Solution is Possible, but not Guaranteed

VA has shown in the past that it is able to implement a COTS scheduling system in a cost effective way with RMS, the COTS program used in Indianapolis. RMS went through the procurement process with five vendors in 1999 and evaluated each for cost, ease of usability, and ability to integrate with VistA. The independent installment of RMS in Indianapolis was not a pilot. The project team implemented RMS under the $250,000 budget, which did not include licensing fees of $50,000 per year (Choice Act site visit interview, 2015). According to Indianapolis leaders interviewed, the main reason why the RMS COTS product was feasible and cost effective was that its project owners decided not to add significant customization. As a result, implementation successfully addressed some scheduling usability issues and demonstrated that a COTS system could successfully integrate with the overall VistA system. However, this was a small scale implementation that was not replicated again.

Despite the success in Indianapolis, other efforts to replace the scheduling system overall have not been successful. As further explored by Assessment H, the media, VA Office of Inspector General (OIG), and the Government Accounting Office (GAO) have documented many public failures over the last 15 years.

For example, in fiscal year 2000, VA determined the need to replace VistA Scheduling with a new system referred to as Replacement Scheduling Application (RSA), "due to the age of the software, as well as a 1998 GAO report concerning excessive wait times for Veterans to schedule appointments" ("Review," 2009). This effort was unsuccessful for three reasons, according to the VA Office of Inspector General:

- There was a lack of program and requirement planning due to numerous changes in direction including some due to the Health**e**Vet initiative

- VA did not have staff members with the necessary expertise to execute a large scale IT project
- Responsibility of the project changed four times between fiscal years 2000 and 2009 leading to a lack of accountability

In 2009, in response to the failure of RSA, the VA Chief Information Officer initiated the Program Management Accountability System (PMAS). PMAS is an IT development process owned by OI&T that project teams must use across VA for IT implementations with a value greater than $250,000. According to the PMAS website, there are eight major principles of the PMAS approach: incremental development, integrated teamwork across VA, accountability, resource management, transparency, senior leadership engagement, direct participation by the customer, and an emphasis on agile practices. Unfortunately, a recent OIG audit found that PMAS has not completely succeeded in removing the project management deficiencies that led to the previous failures because it has not yet established "key management controls to ensure PMAS data reliability, verify project compliance, and track project costs have not been well established."

Findings from Assessment H, as well as a 2012 internal review of OI&T, highlight that the broader VA organizational structure for IT may also limit the ability for VA to fund and implement IT capabilities. This structure affects the likelihood that MASS could successfully roll out. For instance, Assessment H found that VHA and OI&T are not effectively collaborating with respect to the planning of IT strategies for managing and furnishing health care. Further, they found that stakeholder engagement in requirements definition is limited as a result. An internal review of OI&T in 2012 allegedly found many issues with capabilities within OI&T, including a disconnect between OI&T and the rest of the organization as well as excessive management layers between the facilities and OI&T leadership (Konkel, 2013).

Learnings from successful IT implementations outside of VA can inform continued planning efforts for MASS.

Research suggests that there are several key success factors for successfully implementing IT projects. These factors include:

- **Manage customization:** Successful efforts carefully determine the appropriate level of customization by weighing the costs and benefits of each additional build-out and avoiding "gold plating." As previously mentioned in Scheduling Process Section 6, scheduling processes vary significantly across facilities. There are over 140 instances of VistA today due to past local customization (Connected Health, interview, 2015). VHA facilities may need to change some of their processes to match a new system in order to avoid excessive customization. VA leaders interviewed do not know how much customization business owners will request as part of MASS nor what the process will be for managing it.
- **Engage the business owner:** IT rollouts are successfully completed on time and on budget if the implementation and requirements are substantially driven by the business owner (both at the top-level business sponsorship level and at the user level). The ACAP office,

the business owner of MASS, is reportedly in close communication with OI&T. However, it is unclear if OI&T has yet engaged the day-to-day users of the scheduling system.

- **Pilot and test major features/functions:** Project teams should test all major functionalities in various environments of the ultimate user base. Within VHA, this would help demonstrate the functions of the system in different facilities (for example, VAMCs, CBOCs), across multiple specialties (for example, primary care, mental health, cardiology), for multiple resources (for example, providers, rooms, equipment), and with multiple users (for example, schedulers, clinic administrators, providers, and patients).
- **Build rigorous performance management structure** by: 1) establishing a program structure with clear governance, roles, and decision rights, 2) creating a simple, visual, master program plan with logical work streams and milestones, 3) measuring and tracking progress against transparent short-term and long-term milestones, 4) engaging business customers in the project delivery, and 5) aligning incentives of project and program management team to overall project performance metrics.

7.3 Recommendations

Previous work by VA, OIG, and other independent groups indicated that there are key system capabilities missing from VistA Scheduling, which, in turn, affect the scheduling process for schedulers, administrators, and patients. Further, GAO recommended actions to introduce software changes that would allow a scheduler to view provider availability on a single screen and require fewer keystrokes for each action. According to OIG, these issues cause errors in the scheduling process.

To improve the system usability for administrators, many groups recommended system changes to address the need for increased and easier access to data. Specific recommendations included that VA standardize management data through use of standard data dashboards (“Audit,” 2008). See Appendix E.3 for additional detail on previous reports.

As described in this section, VA is in the process of several changes to its scheduling system, many of which appear to be necessary improvements. Additionally, it will be necessary to address potential opportunities to ensure the effectiveness of current initiatives. Regarding its scheduling system, VA/VHA (as relevant depending on ownership of specific element of IT process) should consider the following recommendations:

7.3.1 Implement Necessary non-System Changes Described in This Report; Continue to Implement Interim System Improvements That are Already in Progress

It is evident from this assessment that system changes alone will not improve the scheduling process. Instead, scheduling system improvements need to be paired with other improvements addressing the major scheduling issues highlighted throughout this report including the lack of accountability and resourcing at the facility level for scheduling and access management (described in 5.2.6 of Provider Availability and 6.2.7 of Scheduling Process) and variability in the use of scheduling best practices at the clinic level (described in 6.3.2 of Scheduling Process). As discussed in this section, interim solutions, VSE and VAR, are likely to address select scheduler and patient usability challenges, but will not comprehensively address all of the current underlying system issues outlined such as the need to accurately measure appointment supply. As of May 2015, VA reports that both solutions are moving through the implementation process (for example, user testing) against a fall 2015 timeline (ACAP, interview, 2015). VHA should ensure that this implementation is set up for success in terms of planning and resourcing for roll-out, while maintaining a near-term timeline given that MASS will take several years before being fully implemented.

7.3.2 Perform Full Analysis of MASS Alternatives (if one has not yet Been Completed) and Ensure Comprehensive Implementation Plan

The MASS procurement was undertaken to obtain a COTS scheduling product similar to what is used in the broader industry. As mentioned, we were not able to validate the existence of a robust analysis of alternatives (AOA) that considered the relative cost and benefits of MASS as compared to other system change or procurement approaches (e.g., changes to VistA Scheduling, local procurement of COTS products). To feel confident in the cost effectiveness of its selection, VA OI&T should ensure that this analysis has been completed and is informing the MASS plan.

In addition, VA OI&T has already been working closely with the MASS business owner, VHA's ACAP office, to develop business and technical requirements for MASS. However, OI&T should perform a careful AOA along with systematic planning (if it has not already done so) that also addresses broader IT program challenges articulated in Assessment H.

For MASS, additional robust planning (where not already in progress) could include the following:

- Ensure that VA OI&T, ACAP and field leadership are working in close coordination to make joint decisions on detailed design (e.g., minimizing custom scheduling features as is typical in the private sector) so that further requirements development occurs in a coordinated manner with an eye toward prioritization and robust cost/benefit analysis.
- Ensure that OI&T continues to enlist both the ACAP office as well as its broader stakeholders (patients, providers, schedulers, administrators) in the rollout of MASS. For the rollout, OI&T, ACAP, facility leadership and scheduling system users will all need to contribute to the planning in a meaningful way if the roll-out is to be successful. For example, the joint team could complete the initial phases of deployment across separate VISNs, in multiple care settings (like VAMC, CBOC, etc.), in various medical specialties (for example, primary care, mental health, cardiology), for multiple resources (like providers, rooms, equipment), and with multiple users (for example, schedulers, clinic administrators, providers, patients) to ensure it understands the needs of the end users and proactively manages in advance of full implementation. This could help to ensure that MASS improves scheduling across all VHA facility settings and that the full roll-out proceeds more smoothly.

- Ensure that OI&T establishes a robust performance management and governance structure addressing any known limitations to PMAS to ensure the broader cost effectiveness and feasibility of the MASS project. This could require, where not already expected to happen, a monthly cadence of performance management meetings with senior leaders to review key milestones, assess the budget, review performance metrics (like time required to complete an appointment, scheduler satisfaction, etc.), review changes in scope, and problem-solve issues.

7.3.3 Scheduling System Improvements (Likely Through MASS) Should Address the System Changes Summarized in the Table Below

Table 7-1. Choice Act Requirements and Relevant Recommendations

Choice Act requirements	Relevant Recommendation
(iii) Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.	8.3.1 Continue requiring all schedulers to receive training before receiving access to the scheduling system; utilize more initial training, on-the-job training, and experiential methods to equip schedulers for their responsibilities
(viii,II) Changes in monitoring and assessment conducted by the Department of wait times of Veterans for such appointments. [note: this was not specific to IT, but requires IT support]	6.3.1 Update scheduling system design to accurately aggregate available appointment slot information to provide visibility into the third next available wait time metric
(viii,III,aa) Changes in the system used to schedule such appointments, including changes to improve how the Department measures wait times	6.3.1 Update scheduling system design to accurately aggregate available appointment slot information to provide visibility into the third next available wait time metric
(viii,III,bb) Changes in the system used to schedule such appointments, including changes to improve how the Department monitors the availability of health care providers of the Department	5.3.2. In the longer term, transition to a system design that enables an accurate view of provider supply; this would allow administrators to be able to accurately assess provider availability without significant manual analysis
(viii,III,cc) Changes in the system used to schedule such appointments, including changes to improve how the Department provides Veterans the ability to schedule such appointments.	7.3.1. Implement necessary non-system changes described in this report to improve patient experience; continue to implement interim system improvements that are already in progress, which would include

Choice Act requirements	Relevant Recommendation
	VAR, a program that would allow Veterans to request and schedule appointments online for some specialties

8 Scheduler Training

8.1 Context & Approach

VHA policy requires that standard online and classroom training be provided to all individuals to obtain system privileges, regardless of role (VHA Directive 2010-027). According to ACAP, this initial training currently covers three main topics:

- Scheduling and related systems (for example, VistA Scheduling, CPRS)
- Processes and policies (for example, when to use EWL)
- Soft skills (such as patient interaction) (ACAP, interviews, 2015).

The mandatory online modules for these topics are administered through VA's Talent Management System (TMS); the modules are often referred to as "TMS training." In addition to the TMS training, a nationally developed soft skills training, comprising videos and classroom-based discussion, is administered locally by the facilities. Local facilities frequently develop supplemental materials as needed. See Appendix F.1 for details on this initial training.

VHA policy requires that schedulers receive training of some form whenever new policies are introduced or after an annual scheduling audit if deficiencies are identified, additional training can be administered at any time (VHA Directive 2010-027). All staff members who have any of the VistA Scheduling options that may be used for scheduling patients are placed on the Master List. Those on the Master List have an annual VHA assessment, which is administered by their facility (VHA Directive 2010-027). When these assessments reveal knowledge gaps, training is required and is administered on an individualized basis. Typically, this includes retaking modules from initial training and, in some cases, receiving one-on-one coaching with supervisors.

The Choice Act required a review of scheduling training material and an assessment of whether employees conducting tasks related to scheduling were properly trained.

To conduct this area of the assessment, our data sources included:

- Talent Management System (TMS) training modules required for those with system privileges
- A survey with specific training-focused questions for "schedulers," individuals who indicated that they schedule appointments for outpatient care (N=825), including both frontline MSAs (N=726) and non-MSAs with scheduling privileges (N=99); as well as MSA supervisors (N=70), clinic administrators (N=80), providers (N=1,054), administrative officers (N=86), and clinical leaders (N=121).[60]

  The survey was intended to reach all facilities and respondents represented 137 VAMCs (90 percent of all VAMCs) and 320 CBOCs (39 percent of CBOCs) overall.[61] Given this sample size the survey results have a margin of error of approximately 3.4 percent.

---

[60] Response rate unknown, as total numbers for these groups were not available

[61] Assuming 152 VAMCs and 819 CBOCs (VSSC, 2014)

- A data call distributed to all VAMCs via the 21 VISN directors requesting three types of information: training content and delivery, reporting structure and audit performance, and policy dissemination. A total of 102 VAMCs responded (67 percent response rate) to at least some part of the data call. This included a survey regarding the creation, maintenance, and delivery of trainings (N=49 VAMCs, 32 percent response rate); a survey of facilities' scheduler reporting structures and scheduler audit performance (N=73 VAMCs, 48 percent response rate); and a collection of national and local training materials for MSAs on new policies (N=51 VAMCs, 34 percent response rate).

  The materials collected were analyzed for the period in which they were delivered, the topics they covered, and the format of delivery used to discover best practices currently taking place within VAMCs.
- 22 interviews related to scheduler training approach with designated lead administrator responsible for training during on-site visits at 17 VAMCs
- Interviews with 10 private sector health care system administrators with responsibility for scheduler training

8.2 Findings

8.2.1 Not All VHA Schedulers Receive Enough Initial Training or on-the-job Training; Training That is Delivered is Rarely Experiential, a Difference From Private Sector Health Systems

8.2.1.1 Some Schedulers Receive Relatively Little Initial Training; a Majority of Schedulers, AOs, and Providers Report That More Training for Schedulers Would be an Improvement

The largest groups with scheduling system access based on our data call are:

- MSAs (36 percent of total)
- Allied health professionals (22 percent of total)
- Nurses (17 percent)
- Administrators (14 percent)
- Pharmacists (3 percent)
- Other less than 2 percent each: Care coordinators, Managers (2 percent), Physicians (2 percent), Employees in ancillary roles (1 percent), Nurse practitioners (1 percent), Physician's assistants (1 percent)

According to 825 survey responses from schedulers, (MSAs [N=726] and non-MSAs [N=99]), across 97 VAMCs and 128 CBOCs, 79 percent of schedulers reported receiving at least two hours of initial training on scheduling systems. Seventy-two percent reported receiving at least two hours of initial training on policies and processes, and 70 percent did so for training on soft skills. This means that for each of the required topics of national training, more than 20 percent of schedulers report receiving less than two hours of initial training. There are several possible explanations for this, other than incomplete implementation of mandatory training. First, because the TMS modules are self-paced, it is possible that some individuals simply took less time than expected to go through the training. Second, some schedulers may have started before training became nationally mandated in 2010. Regardless, the current state in which less than 80 percent of schedulers report receiving at least two hours of initial training on each topic suggests implementation of mandated training could be more rigorous.

We also found that the amount of training schedulers receive differs significantly between facilities. Based on the responses of 333 schedulers who come from the 20 largest facilities surveyed, there is a statistically significant variability (p value = 0.041) in how many hours of initial training facilities provide on using scheduling systems, for example. There are similarly wide ranges between facilities for training on soft skills, scheduling policies and processes, and on-the-job training. See Appendix F.1 for full analysis. If mandatory TMS training time were summed across all scheduling-specific modules, approximately half of a day of TMS training would be expected. This amount is shorter than what is typical in the private sector, where initial classroom training typically ranges from one to five days (Private sector health systems, interviews, 2015). Geisinger Health System, for instance, places new hires in clinic settings for several days to learn how a clinic operates and then provides several days of classroom training (Geisinger interview, 2015).

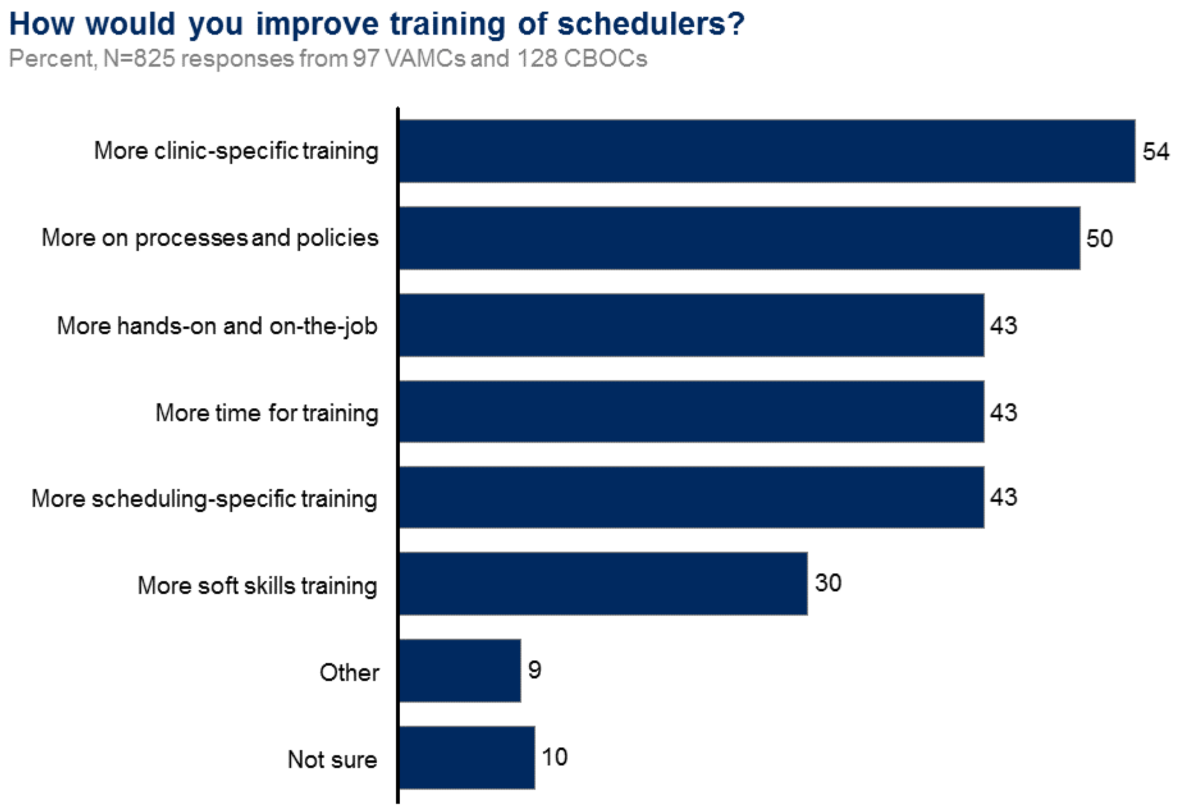
Consequently, among AOs, providers, and schedulers who we interviewed, a majority of each group identified current training for schedulers as inadequate. In group interviews of schedulers, 65 percent[62] identified training as a major challenge. Their focus was primarily on the content of training not matching with their actual jobs: “We learn how to book an appointment in a vacuum but then we show up on our first day and it’s a whole new world,” reported one scheduler.

Our survey of schedulers (see Figure 8-1) likewise showed that 90 percent listed at least one area in which they would like more training. A breakdown of how schedulers believed training could be improved is below:

---

[62] Site visit scheduler group interviews, N=15 of 23 VAMCs

Figure 8-1. Response of Schedulers Asked: "How Would You Improve the Training of Schedulers?" 2015 VHA Employee survey, n = 825 Schedulers from 97 VAMCs and 128 CBOCs



SOURCE: 2015 VHA Employee Survey

Figure 8-1 shows schedulers' desired areas for training improvement based on a national survey. This survey shows that a large portion of schedulers want more training in several specific areas, including clinic-specific content (55 percent), processes and policies (51 percent), scheduling-specific (44 percent), and hands-on and on-the-job training (43 percent). This survey includes responses from 825 schedulers from 97 VAMCs and 128 CBOCs. Source: Assessment E VHA employee survey, 2015.

From interviews with AOs and clinic managers it was clear that they, too, see lack of training for schedulers as a challenge; 65 percent of group interviews[63] identified training as an area that needs to be addressed. Their most common areas of concern were the lack of content focusing on day-to-day processes and the perceived infrequency of training. For example:

Content

- "[Schedulers] don't get enough training on how processes work in the real world."

---

[63] Site visit clinic administrator group interviews, N=15 of 23 VAMCs

- “Their training is not matched to their actual duties.”
- “Schedulers get trained on how to book appointments and put people on lists, not how to function in a clinic, which involves a lot of other things.”

Frequency

- “Training doesn’t happen often enough.”
- “Once [schedulers] finish their initial training, there’s not much that happens.”
- “I can’t even remember the last time one of my MSAs got training.”

Certain providers also indicated that a lack of adequate training for schedulers may impede their ability to see patients. In our survey of 1,054 providers, only 56 percent of providers responded “yes” when asked if they feel that their schedulers are adequately trained. Specifically, providers were concerned that training is not actually ensuring high quality scheduler performance. According to providers:

- “Scheduling mistakes among schedulers are common, which wastes [provider] time.”
- “Schedulers will put new patients in follow-up slots, which is impossible for me to handle. The rest of my day then runs behind."
- “The MSAs in my clinic need more training on how to serve patients. They are the face of the clinic, and sometimes they don’t act like it.”

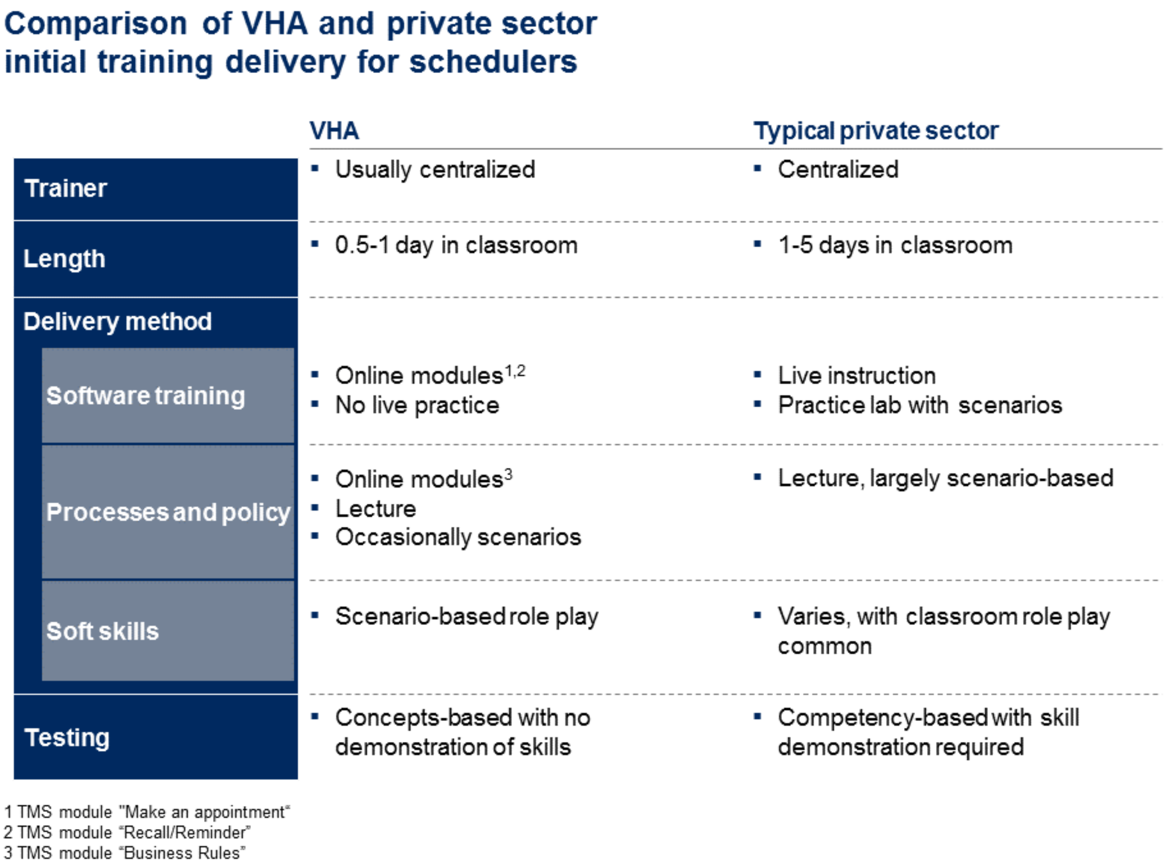
8.2.1.2 VHA Uses Less Experiential Training Than Many Private Sector Health Systems, Which may Result in More Limited Training Retention and Scheduler Performance

As described in the previous section, VHA’s nationally standardized training is focused on scheduling software, processes, policies, and soft skills. These topics are consistent with private sector training content. However, the major difference between VHA and private sector initial training is the delivery method. VHA largely delivers training through online modules rather than through interactive or experiential learning. According to many schedulers, the use of online TMS modules is potentially ineffective:

- “All we do [in TMS modules] is look at screenshots of VistA and CPRS; we never get to actually use them.”
- “We need more training than what we get with TMS.”
- “TMS isn’t helpful for our day-to-day jobs”

As described in Figure 8-2, many private sector health system use significantly more experiential training, or training that involves application of learnings in realistic settings such as through role play scenarios or in a simulation lab. In interviews, private sector administrators consistently mentioned that they used practice labs with test accounts set up for schedulers to use for practice.

Figure 8-2. Comparison of VHA and Private Sector Initial Training Delivery for Schedulers



Comparison of VHA and private sector initial training delivery for schedulers

		VHA	Typical private sector
Trainer		Usually centralized	Centralized
Length		0.5-1 day in classroom	1-5 days in classroom
Delivery method			
	Software training	Online modules[1,2] No live practice	Live instruction Practice lab with scenarios
	Processes and policy	Online modules[3] Lecture Occasionally scenarios	Lecture, largely scenario-based
	Soft skills	Scenario-based role play	Varies, with classroom role play common
Testing		Concepts-based with no demonstration of skills	Competency-based with skill demonstration required

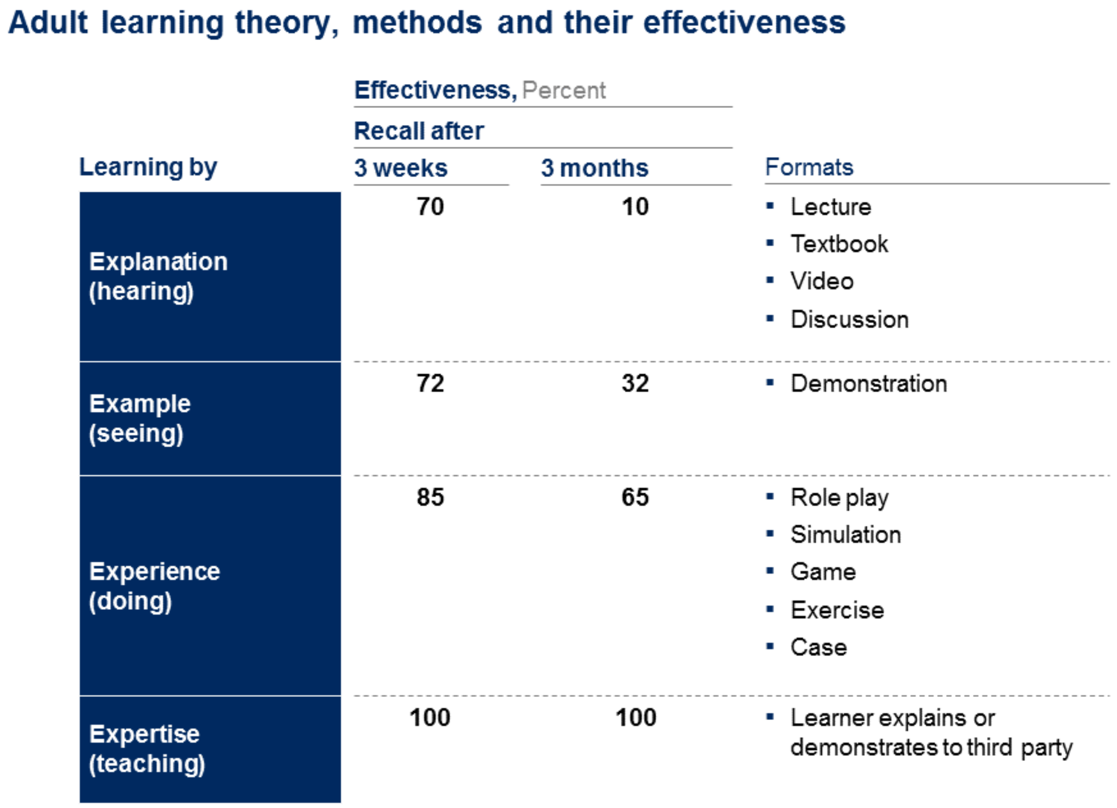
1 TMS module "Make an appointment"
2 TMS module "Recall/Reminder"
3 TMS module "Business Rules"

Figure 8-2 shows a comparison of initial training delivery between VHA and best-in-class private sector health systems for schedulers. This information comes from a review of VHA national training materials and interviews with health system administrators at 10 private sector health systems. Sources: Choice Act site visits, interviews, 2015; Private sector health systems, interviews, 2015.

Experiential training typically includes trainee completion of typical scheduling scenarios. These scenarios include start to finish processes, such as registering a patient, scheduling an initial appointment, scheduling a follow up appointment, processing a referral, and other standard processes, beginning with more basic processes and moving to more complex scenarios. Multiple private sector health systems also reported requiring schedulers to successfully demonstrate scheduling competencies prior to beginning their scheduling duties.

Consistent with private sector use of experiential training, research suggests that organizations should minimize in-classroom training and online modules in favor of experiential activities (Whitmore, 2002). Specifically, research has found that experiential training (like practicing potential scenarios on a computer rather than through lectures or manuals) leads to higher retention of the content, as seen in Figure 8-3. This best practice contrasts with VHA's nationally standardized training materials focused on online modules. For additional detail on best practices, see Appendix F.2.

Figure 8-3. Adult Learning Theory, Methods and Their Effectiveness, Based on Data From IBM Research and UK Post Office, Whitmore, 2002



Adult learning theory, methods and their effectiveness

Learning by	Effectiveness, Percent Recall after 3 weeks	 3 months	Formats
Explanation (hearing)	70	10	Lecture Textbook Video Discussion
Example (seeing)	72	32	Demonstration
Experience (doing)	85	65	Role play Simulation Game Exercise Case
Expertise (teaching)	100	100	Learner explains or demonstrates to third party

SOURCE: IBM research

Figure 8-3 outlines adult learning methods and their effectiveness. Experience (doing) and expertise (teaching) result in higher short- and long-term retention rates (65 percent and 100 percent at three months, respectively) compared to explanation and example (10 percent and 32 percent at three months). Source: Whitmore, 2002 on IBM Research and UK Post Office.

Despite the overall lack of experiential training reported by many schedulers, there are some facilities that excel in this area.

VHA high-performance example: The Robert J. Dole VAMC
The Robert J. Dole VAMC has developed a three-day training program followed by in-clinic observation. The three days include PowerPoint step-by-step instructions, instructor demonstration, and then hands-on practice for multiple scheduling processes such as scheduling an appointment, placing a Veteran on the EWL or recall list, and cancelling an appointment. Each day is concluded with a quiz to test understanding of the day's materials.

Several VAMCs have also developed scheduler competency checklists to document the scheduler's demonstration of required competencies (Assessment E national data call, 2015)

Other facilities, which did not use as much experiential training, cited multiple challenges preventing them from adopting these methods, including a lack of space, technology limitations, and a lack of dedicated trainer time. Regarding space, several scheduling administrators mentioned that no dedicated training space exists within their facilities, so it would be difficult to find physical locations to house a practice lab or perform additional classroom-based training. As for technology, many private sector scheduling systems allow trainees to access a test environment and work through a specified set of activities; however, no facility reported using VistA Scheduling for this type of activity. Altogether the lack of space, technology limitations, and full-time trainers inhibit a facility's ability to provide experiential training, including scenarios, role plays, and practice lab activities.

8.2.1.3 On-the-job Training is Inconsistent at VHA Facilities, With Some Schedulers Reporting a Difficult Transition From Classroom to Clinic or Call Center

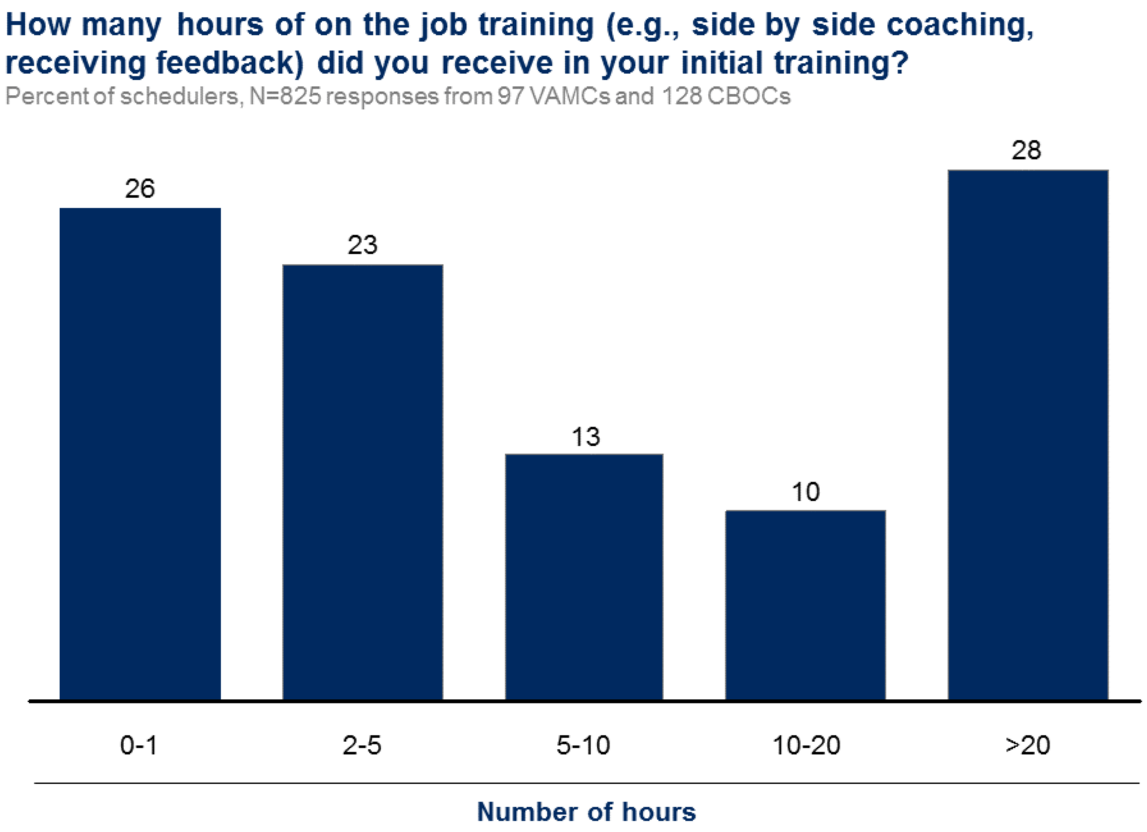
On-the-job training includes initial training in the actual work environment, such as side-by-side coaching and receiving feedback. In the private sector, shadowing and pairing new employees with more experienced schedulers are commonly used practices to ensure a smooth transition from the classroom to scheduling independently. Geisinger Health System, for instance, requires all new schedulers to sit with an experienced scheduler for at least two to three weeks (Geisinger interview, 2015). These new employees begin this training period by exclusively observing the scheduler and clinic flow. Over time, they take on additional responsibilities until, by the end of the period, the new employees are capable of functioning independently. In addition to providing relevant, real-world training, another benefit administrators mentioned is that on-the-job training serves as a final quality check before schedulers operate on their own. "If [a scheduler] isn't performing well, we can bring them back for more training," said one administrator.

According to interviews with administrators at site visit facilities, 47 percent of VAMCs[64] reported providing some shadowing or placement of new schedulers with more experienced schedulers. However, the delivery of on-the-job training at VHA is not standardized, resulting in variable use across facilities. Our survey of schedulers revealed that 28 percent of schedulers received more than 20 hours of on-the-job training while 45 percent received five or fewer hours, as shown in Figure 8-2. Overall, 43 percent of schedulers desire more on-the-job training (see Figure 8-4), and for the schedulers who receive few hours of on-the-job training, the experience can be challenging. As one scheduler said, "We go straight from training in the classroom to being on our own in the clinic. [We're] just thrown into the deep end."

---

[64] Site visit training administrator interviews, N=8 of 17 VAMCs

Figure 8-4. Response of Schedulers Asked: “How Many Hours of Training Specific to the Following Topics did you Receive in Your Initial Training: On-the-job-training (for Example, Side-by-Side Coaching, Receiving Feedback)?” 2015 VHA Employee Survey, n = 825 Responses from 97 VAMCs and 128 CBOCs



SOURCE: 2015 VHA Employee Survey

Figure 8-4 shows the number of hours of initial on-the-job training reported by schedulers for each facility. This survey shows that while some facilities provide over 20 hours of initial training (28 percent), almost half receive fewer than five hours (21 percent zero to one hour, 24 percent two to five hours). Source: Assessment E VHA employee survey, 2015.

VHA high-performance example: Cincinnati VAMC
An example of a facility that does provide on-the-job training is the Cincinnati VAMC, where all new schedulers receive at least one to two weeks of on-the-job shadowing and working one to one with another supervisor before working independently. Administrators in this facility, as well as leaders at several other facilities, mentioned that shadowing actually did not add much time to the training process, as schedulers could do this while waiting to be granted official access to the system, which can take days or weeks (Choice Act site visits, interviews, 2015).

For the 45 percent of facilities that provide five or fewer hours of initial on-the-job training, scheduler group interviews suggest that the need to quickly fill scheduler vacancies may lead to schedulers being immediately put to work, rather than having time for on-the-job training. This same issue was raised as far back as the 2007 VA Office of the Inspector General Report. Indeed, 23 percent of scheduler positions VHA-wide are unfilled, according to the VHA Talent Management Office. As one AO reported, “In an ideal world, everyone has time to shadow. Unfortunately, we’re so desperate for bodies right now that we can’t wait [for them to start on their own].”

8.2.2 VHA’s Scheduling Processes are not as Simple and Standardized as Those in Many Private Sector Health Systems, Increasing Schedulers’ Need for Training

8.2.2.1 Unlike VHA, Many Private Sector Health Systems Streamline the Overall Scheduling Function, Which Results in a Minimized Need for Training

As discussed in Provider Availability Section 5, Scheduling Process Section 6, and Scheduling System Section 7, VHA schedulers must navigate a large number of processes and unique VHA responsibilities while relying on difficult-to-use software. This results in the need for significant training for schedulers in order to become high-functioning. Private sector health care systems, on the other hand, aim to minimize the amount of training needed by simplifying and automating as much of the scheduling process as possible. “We try to make their role in the scheduling process like clicking a button, so all they have to learn is how to provide a great patient experience,” according to one private sector administrator. Some of the industry standard ways used to minimize training requirements include:

- **User-friendly software interface:** Private sector systems utilize user-friendly point-and-click GUI, which are similar to other scheduling tools used in an employee’s personal life. In contrast, VHA schedulers must learn VHA’s unique scheduling system. Further, compared to private sector scheduling systems, VHA scheduling software requires additional steps for even the most basic tasks such as finding an available appointment slot.
- **Minimized number of software programs:** In private sector, electronic medical record systems often have built-in scheduling functionality, reducing the number of unique systems schedulers must learn to use. VHA schedulers must learn to use multiple software programs, including VistA Scheduling to make appointments, CPRS to look at orders, VetLink for check-ins, Insurance Capture Buffer (ICB) to capture insurance information, Technical Reference Model (TRM) for documentation, and in some cases call center-specific software as well (for example Customer Relationship Management (CRM).
- **Business rules built into scheduling software:** Private sector health care systems build logic into the scheduling software to prevent mistakes from being made. As an example, if a patient is indicated to need a Sports Medicine appointment by the referring provider, only pertinent slots in the appropriate subspecialty clinic will be shown to the scheduler for booking. This capability is limited within VistA Scheduling.
- **Fewer scheduler responsibilities:** Private sector health systems have largely removed any non-scheduling related responsibilities from schedulers. One example of this is the

capture of wait times data, for which private sector schedulers usually do not play a role. VHA schedulers, on the other hand, must manage within an environment of ambiguous policies (for example, the use of desired date) used to capture data that the private sector can typically capture via its systems. See Scheduling Process Section 6 for more detail.

Compared to schedulers in many private sector systems, VHA schedulers work with a larger set of rules and processes that are widely variable in implementation and use less advanced technology. VHA has not done as much as private sector health systems to reduce the need for scheduler training.

8.2.2.2 Inconsistent Practices Within a VHA Facility's Clinics may Also Increase the Training Needs of Schedulers who Switch Between Clinics

Aspects of the scheduling process currently vary significantly between clinics. Examples include different implementations of national policies and clinic- or provider-specific scheduling rules. While some variations are necessary and found in private sector organizations as well, other variations could be standardized without harming clinical care.

When schedulers switch to a new clinic, these differences lead to challenges and mistakes. According to schedulers:

- "Switching to a new clinic is like learning how to be an MSA all over again"
- "It's really hard to start in a new clinic because everything is different"
- "Sometimes we have to cover in unfamiliar clinics when someone's out [on sick leave]. You feel so clueless"
- "I'm trained to be a float and in theory should be able to cover multiple clinics, but even I have trouble keeping up with all the differences"
- "When I find out I'm in a new clinic for the day, I know I'm going to fail before I even start"

While a portion of this clinic variability may be necessary (due to clinical differences between specialties, for example), much of the variability that makes it difficult for schedulers to rotate clinics is not. There are two sources of variation within VHA: common processes that have variable implementation and rules specific to particular providers and clinics.

An example of the former is patient reminders. As discussed in Scheduling Process Section 6, patient reminder use varies in terms of method and timing. One solution was adopted at the Detroit VAMC, where they adopted a standard appointment reminder process in which all patients receive a letter ten days ahead of time and an automated phone call three days ahead of time (Choice Act site visits, interviews, 2015). By implementing this across all of its clinics, Detroit VAMC was able to remove this source of variation while potentially improving patient access. This reduction in variation between clinics has resulted in improved ability to float schedulers across clinics. According to an administrator within the facility, "Our goal is to be able to have any scheduler work in any clinic."

An example of rules specific to particular providers and clinics was provided in group interviews with schedulers. One scheduler said, "Some doctors only want new patients in this time slot, some only want them in that time slot. How am I supposed to know all this?" Some of these provider-specific preferences may be well-intended (for example to minimize chance of too many new patients scheduled in one day), but their impact on scheduling is clear: the more restrictions providers place on their schedules, the more difficult it is to learn how to schedule for these providers. Schedulers particularly feel the difficulty with learning a new clinic when provider preferences are not clearly documented. Undocumented rules are not written within the provider's profile or in any sort of manual for the clinic but rather must be passed down informally from one scheduler to the next or through direct conversations with providers. The existence of undocumented provider- and clinic-specific rules makes it more challenging for schedulers in a new clinic to avoid mistakes, as previously discussed in Provider Availability Section 5.2.5.

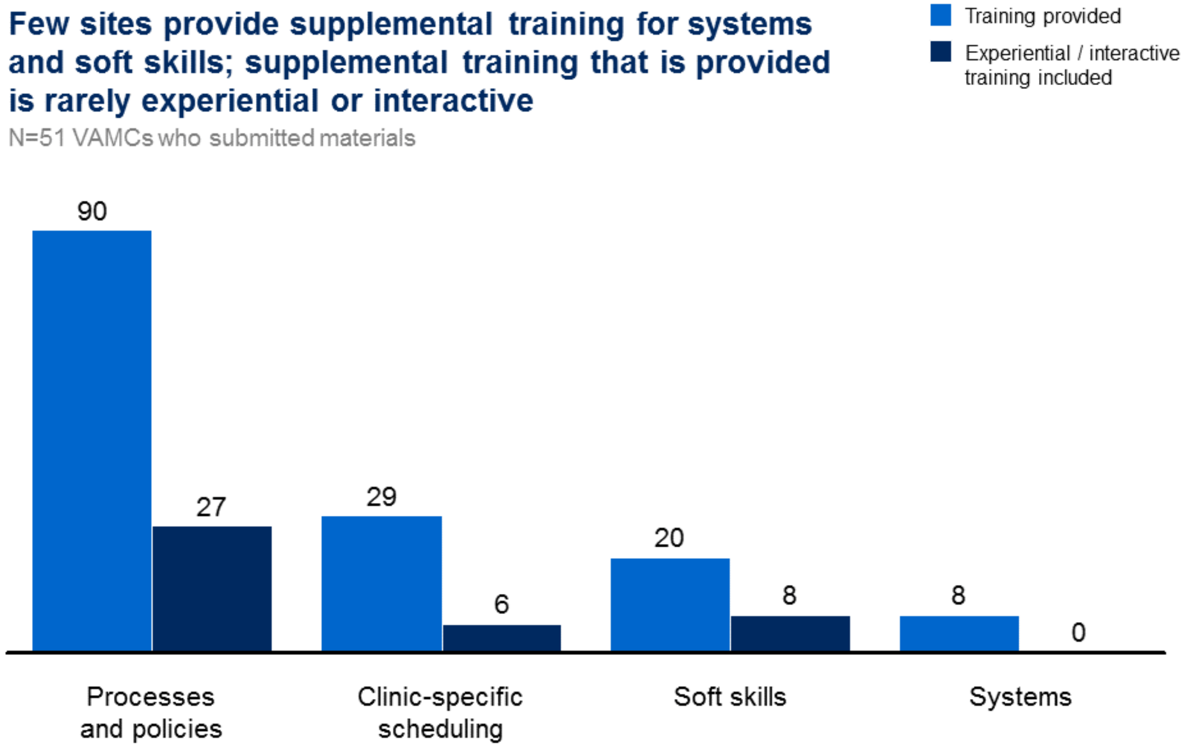
Private sector health systems have addressed the level of difficulty with which schedulers can rotate clinics in a number of ways, all with the goal of increasing the speed at which a new scheduler becomes proficient. The first way to reduce switching difficulty is through standardizing processes across clinics. According to one private sector administrator, "[We aim to provide the] same experience across our entire hospital for both patients and schedulers." This is accomplished largely through the standardization of schedule setup across providers and specialties, which is not currently done within VHA, as mentioned in Provider Availability Section 5. Additionally, private sector systems aim to minimize unnecessary clinic- or provider-specific rules and document all those deemed necessary within the system. This does not mean that all clinic should have the same practices for all processes, but rather that policies and process have a clear, published implementation practice and a clear delineation of between what processes and policies must be implemented a certain way and where facilities have flexibility. It also means that when facilities do customize a process, it is well documented and integrated into the system business rules to make the change easy to implement for schedulers. As discussed in 8.2.2 and in Scheduling System Section 7, private sector systems utilize their systems this way to reinforce clinic-specific practices.

8.2.3 Training Deployment Practices are Less Efficient Than They Could be

8.2.3.1 Facilities are Developing Duplicative Training Material

Ongoing training content creation is frequently left to individual facilities with minimal guidance, and VHA does not currently play a strong role in facilitating the dissemination of best practice materials across VHA facilities. "We are the ones responsible for our materials, but we don't get any guidance on how we should do that," reported one administrator involved with training. Administrators commonly feel that they lack the materials needed to train schedulers. As a result, many facilities develop their own ongoing training materials, as can be seen in Figure 8-5. For example, 90 percent of facilities develop materials for policies and processes. Looking deeper into policies and processes, we find most of these materials specifically cover scenarios for desired date and various lists, such as Recall and Electronic Wait List. These are nationally applicable content areas, which should be covered in TMS training, suggesting facilities do not regard the national training as adequate.

Figure 8-5. Portion of VAMCs Locally Developing Training Material by Content Area, 2015 National Data Call, n = 51 VAMCs



SOURCE: Choice Act Assessment E Data Call

Figure 8-5 shows the portion of VAMCs that have developed training materials locally by content area. Processes and policies represent the most common content area (90 percent of VAMCs), whereas all other areas are <30 percent. The figure also shows that the large majority of locally developed material is not experiential. This analysis is based on manual review of training materials from 51 facilities who submitted materials in response to our national data call. Source: Assessment E national data call, 2015.

The proportion of facilities creating supplemental training materials for policies and processes has three implications.

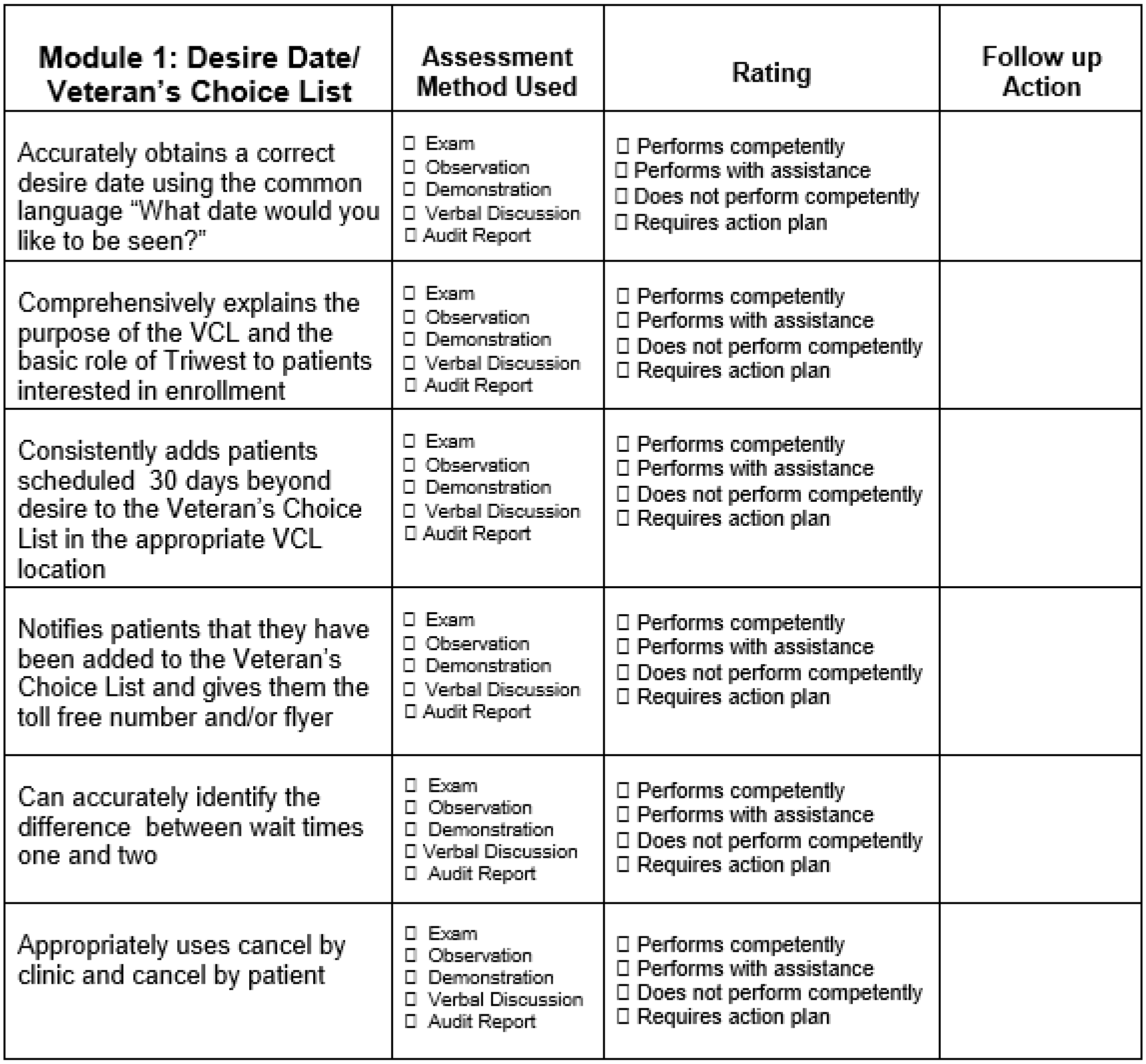
- The national level could support local facilities greatly by improving national-level training on these topics
- Facilities who do create supplemental training materials could benefit from more sharing of those resources. For example, 30 facilities have created training materials just for desired date. At least some of that work is likely duplicative and would be unnecessary if facilities were sharing more materials with one another
- Schedulers in different facilities are likely receiving slightly different training on national-level policies. For example, from training materials we reviewed, one facility's training

explained that only new Veteran patients can be placed on EWL, while another facility's training included two exceptions to that principle.

In this case, the different trainings would clearly lead to different experiences for patients seeking appointments at these schedulers' facilities.

If facilities were sharing materials with each other, potential practices that could be used by a variety of clinics include nationally consistent standard training agendas, training checklists, and guides as can be seen in Figures 8-6 and 8-7 below. Figure 8-6 reflects a facility that uses exams to assess schedulers' readiness, and also seeks for what follow up actions may be needed to prepare the scheduler. Likewise, Figure 8-7 shows how a facility can standardize detailed parts of a process for schedulers.

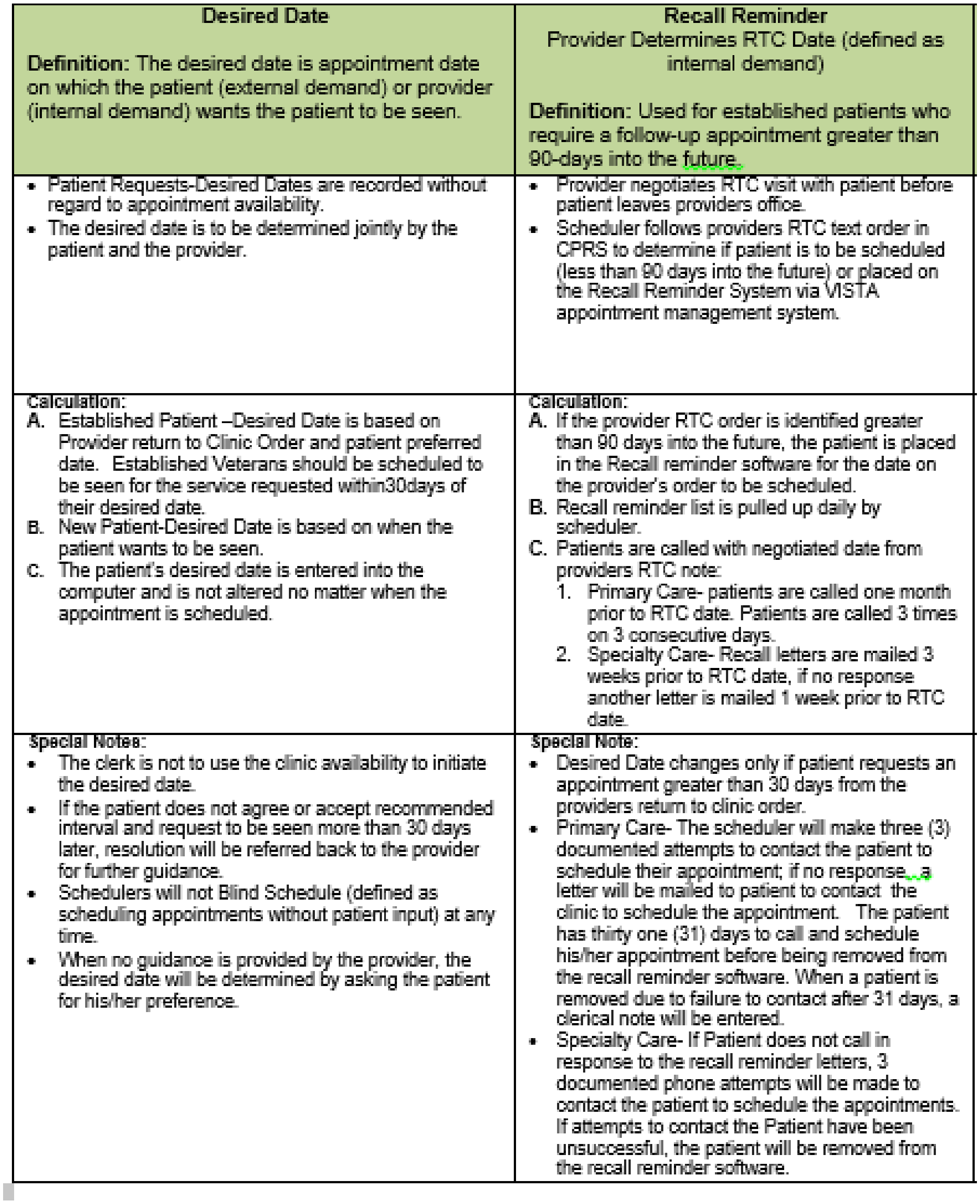
Figure 8-6. Excerpt from MSA Training Checklist



Module 1: Desire Date/ Veteran's Choice List	Assessment Method Used	Rating	Follow up Action
Accurately obtains a correct desire date using the common language "What date would you like to be seen?"	☐ Exam ☐ Observation ☐ Demonstration ☐ Verbal Discussion ☐ Audit Report	☐ Performs competently ☐ Performs with assistance ☐ Does not perform competently ☐ Requires action plan	
Comprehensively explains the purpose of the VCL and the basic role of Triwest to patients interested in enrollment	☐ Exam ☐ Observation ☐ Demonstration ☐ Verbal Discussion ☐ Audit Report	☐ Performs competently ☐ Performs with assistance ☐ Does not perform competently ☐ Requires action plan	
Consistently adds patients scheduled 30 days beyond desire to the Veteran's Choice List in the appropriate VCL location	☐ Exam ☐ Observation ☐ Demonstration ☐ Verbal Discussion ☐ Audit Report	☐ Performs competently ☐ Performs with assistance ☐ Does not perform competently ☐ Requires action plan	
Notifies patients that they have been added to the Veteran's Choice List and gives them the toll free number and/or flyer	☐ Exam ☐ Observation ☐ Demonstration ☐ Verbal Discussion ☐ Audit Report	☐ Performs competently ☐ Performs with assistance ☐ Does not perform competently ☐ Requires action plan	
Can accurately identify the difference between wait times one and two	☐ Exam ☐ Observation ☐ Demonstration ☐ Verbal Discussion ☐ Audit Report	☐ Performs competently ☐ Performs with assistance ☐ Does not perform competently ☐ Requires action plan	
Appropriately uses cancel by clinic and cancel by patient	☐ Exam ☐ Observation ☐ Demonstration ☐ Verbal Discussion ☐ Audit Report	☐ Performs competently ☐ Performs with assistance ☐ Does not perform competently ☐ Requires action plan	

Source: Assessment E national data call, 2015

Figure 8-7. Excerpt From "Scheduling How To's"



Desired Date **Definition:** The desired date is appointment date on which the patient (external demand) or provider (internal demand) wants the patient to be seen.	**Recall Reminder** Provider Determines RTC Date (defined as internal demand) **Definition:** Used for established patients who require a follow-up appointment greater than 90-days into the future.
• Patient Requests-Desired Dates are recorded without regard to appointment availability. • The desired date is to be determined jointly by the patient and the provider.	• Provider negotiates RTC visit with patient before patient leaves providers office. • Scheduler follows providers RTC text order in CPRS to determine if patient is to be scheduled (less than 90 days into the future) or placed on the Recall Reminder System via VISTA appointment management system.
Calculation: A. Established Patient –Desired Date is based on Provider return to Clinic Order and patient preferred date. Established Veterans should be scheduled to be seen for the service requested within30days of their desired date. B. New Patient-Desired Date is based on when the patient wants to be seen. C. The patient's desired date is entered into the computer and is not altered no matter when the appointment is scheduled.	**Calculation:** A. If the provider RTC order is identified greater than 90 days into the future, the patient is placed in the Recall reminder software for the date on the provider's order to be scheduled. B. Recall reminder list is pulled up daily by scheduler. C. Patients are called with negotiated date from providers RTC note: 1. Primary Care- patients are called one month prior to RTC date. Patients are called 3 times on 3 consecutive days. 2. Specialty Care- Recall letters are mailed 3 weeks prior to RTC date, if no response another letter is mailed 1 week prior to RTC date.
Special Notes: • The clerk is not to use the clinic availability to initiate the desired date. • If the patient does not agree or accept recommended interval and request to be seen more than 30 days later, resolution will be referred back to the provider for further guidance. • Schedulers will not Blind Schedule (defined as scheduling appointments without patient input) at any time. • When no guidance is provided by the provider, the desired date will be determined by asking the patient for his/her preference.	**Special Note:** • Desired Date changes only if patient requests an appointment greater than 30 days from the providers return to clinic order. • Primary Care- The scheduler will make three (3) documented attempts to contact the patient to schedule their appointment; if no response, a letter will be mailed to patient to contact the clinic to schedule the appointment. The patient has thirty one (31) days to call and schedule his/her appointment before being removed from the recall reminder software. When a patient is removed due to failure to contact after 31 days, a clerical note will be entered. • Specialty Care- If Patient does not call in response to the recall reminder letters, 3 documented phone attempts will be made to contact the patient to schedule the appointments. If attempts to contact the Patient have been unsuccessful, the patient will be removed from the recall reminder software.

Source: Assessment E national data call, 2015

8.2.3.2 Lack of Clear Ownership for Training Hinders Dissemination of Standard Materials and Consistent Facility-level Delivery

In our private health systems interviews, more than half had full-time trainers who deliver scheduler training. In VHA, 12 percent of site visit facilities reported using trainers,[65] and these are often provided by the VISNs for their multiple facilities. Instead, most facilities relied on other full-time staff (for example, chief of Health Administration Service (HAS),[66] Nursing administrator chief, an IT program support analyst, or an MSA supervisor) to monitor and deliver training. According to clinic administrators, this lack of a dedicated trainer results in a void of clear ownership over both training material development and delivery. Consequently, that responsibility may default to the clinics in which schedulers operate. “The burden is on [clinic managers] to make sure [schedulers] are up to date with national policy,” said one AO. “It’s often left to the clinics to provide training whenever rules change,” reported another AO. The lack of ownership over training may result in inconsistent training, and thus scheduler behavior, across clinics, as seen with the variable uses of EWL mentioned in Scheduling Process Section 6. While training is obviously not the sole driver of variations like these, consistent training would enable more consistent process and policy implementation.

Additionally, MSA reporting structures vary significantly across VHA, potentially resulting in training differences observed across facilities. Whereas some MSAs are directly responsible to the clinic in which they sit, some MSAs, even if they sit in-clinic, report to centralized organizations. There are several different centralized organizations seen within facilities in VHA, including Health Administration Services (HAS), Medical Administration Service (MAS), and the Business Service Line. Depending on the facility, the degree to which MSAs report to these central organizations varies. These are described in Figure 8-8 below:

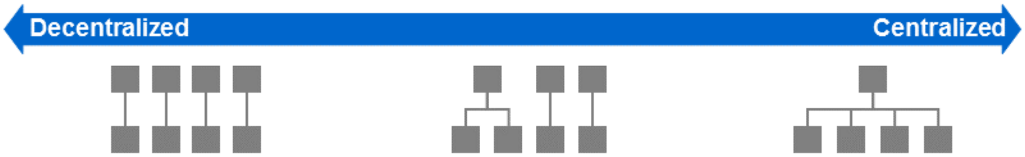
---

[65] Site visit scheduling administrative leader interviews, N=2 of 17 VAMCs

[66] HAS performs numerous medical center-level administrative and clerical functions, including scheduling, medical records management, telephone switchboard operation, and other tasks necessary for the effective, overall management of inpatient and outpatient care (VHA 2008-056)

Figure 8-8. Archetypes of Reporting Structures Seen on Site Visits, n = 25 VAMCs

Examples of types of scheduling reporting structures we have seen with different levels of centralization



Model	**A** **All schedulers report to clinics but centralized support structure**	**B** **Some schedulers report to centralized body, some to clinics**	**C** **All (or almost all) schedulers report to centralized body**
Example clinics	▪ MSAs are supervised by lead scheduler in clinic and managed by clinic administrator ▪ Initial training and ongoing monitoring are led by MAS	▪ In specialty care MSAs are supervised by lead scheduler in clinic and managed by clinic administrator ▪ In primary care MSAs sit in clinic but are supervised and managed by HAS	▪ Large majority of MSAs and supervisors sit in clinic or call center, and are managed by HAS ▪ Small number of MSAs may report to subspecialties ▪ In some cases all MSAs report to HAS
Number of sites observed	▪ 7 (28%)	▪ 8 (32%)	▪ 10 (40%)

Figure 8-8 shows VHA archetypes of reporting structures observed on site visits. The chart shows that 40 percent use a fully centralized MSA reporting structure, 28 percent of VAMCs use decentralized reporting, and 32 percent use a hybrid approach. This analysis is based on site visit interviews with administrators responsible for scheduling at each facility. Source: Choice Act site visits, interviews, 2015.

Archetype C was the most common version (40 percent of site visit VAMCs[67]) we observed with schedulers reporting to a centralized body. In this archetype, a central organization manages MSAs in all services (except for a small number of complex sub-specialties in some instances) and supervisors from the centralized entity act as liaison between MSAs and clinics. All support functions for MSAs (for example, performance management, training) are operated by the central organization. Twenty-eight percent of VAMCs[68] operate in a decentralized structure, in which schedulers report to individual clinic leadership. Thirty-two percent[69] reported a hybrid reporting structure in which some clinics reported to a central body whereas others reported to their individual clinics.

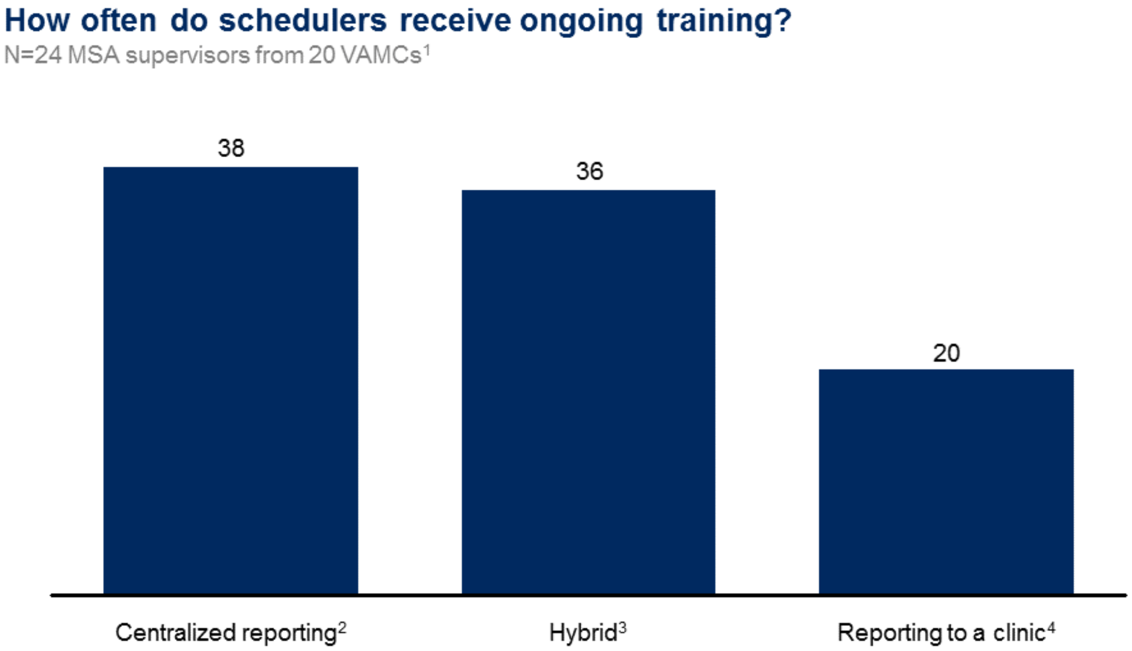
---

[67] N=10 of 25 site visit VAMCs

[68] N=7 of 25 site visit VAMCs

Of note, a significant portion (20 percent[70]) of VAMCs reported an in-progress or recent move toward centralized reporting for schedulers, with many switching from fully decentralized (archetype A) to fully centralized (archetype C). The major reasons reported for this move were more consistent training and improved oversight of MSAs and scheduling processes. Some were moving towards centralization by mandate of their respective VISN. Indeed, from our national data call we found that the more centralized a facility's MSA reporting structure, the more likely its schedulers were to receive ongoing training at least once per month, as seen in Figure 8-9.

Figure 8-9. Portion of Schedulers Receiving Ongoing Training at Least Once per Month by Reporting Structure, 2015 National Data Call, n = 24 MSA Supervisors From 20 VAMCs



1 Data for the frequency of ongoing training comes from 70 MSA supervisors from 36 VAMCs and 20 CBOCs. Here that data is combined with results from the Data Call, which has responses from 73 VAMCs regarding their reporting structure for MSAs. Of these 73 VAMCs who responded to the data call, 20 also had MSA supervisors submit the VHA survey. From those 20 VAMCs 24 VHA surveys were received.
2 A facility is considered to have "centralized reporting" if more than 70% of MSAs report centrally
3 A facility is considered "hybrid" if between 30% and 70% of its MSAs report centrally
4 A facility is considered to have "reporting to a clinic" if more than 70% of its MSAs report to a clinic

SOURCE: Choice Act Assessment E Data Call

Figure 8-9 shows the portion of schedulers reported to receive at least monthly training by reporting structure. Schedulers in centralized and hybrid reporting structures were reported to be more likely to receive monthly training than those reporting to a clinic (38 percent and 36 percent compared to 20 percent, respectively). This data comes from 24 MSA supervisors across 20 VAMCs in response to our national data call. Source: Assessment E national data call, 2015.

---

[69] N=8 of 25 site visit VAMCs

[70] N=5 of 25 site visit VAMCs

The key difference reported between facilities with centralized reporting and facilities with decentralized reporting appears to be more consistent ongoing training. More consistent training, as shown in the figure above, is potentially due to more defined ownership of training across schedulers as well as improved ability to pull schedulers out of clinics for training, as mentioned in sub-section 8.3.2.2.

Regarding centralized reporting structures, some clinical services expressed concerns about the reorganization and how it would affect their clinic functioning. Providers, especially, were concerned that it would decrease accountability to their specific clinic needs, cause errors due to their scheduling nuances, and reduce the MSAs' sense of being part of the team. Despite these concerns, in examining the facility-reported audit performance 1,176 MSAs from 73 VAMCs in our national data call, we did not find any significant difference between the performance of schedulers at facilities with centralized reporting and schedulers at facilities reporting to a clinic. This suggests that centralized reporting structures can increase the frequency and efficiency of training for schedulers without negatively impacting scheduler performance.

8.3 Recommendations

As far back as the 2005 VA Office of the Inspector General Report (OIG), there has been a call for improved training for schedulers. A 2007 OIG report recommended mandatory and annual scheduler training, including training for the VistA Scheduling Systems. For additional detail on these reports, see Appendix F.3. While mandatory training policies were reported at all site visits, surveys showed that more than 20 percent of schedulers receive less than two hours of training per topic, and almost all schedulers believe training would be improved if it were increased.

According to interviews with VHA leadership, several initiatives are currently in progress to improve best practice sharing, which may include training materials. These include:

- **Creation of a Community of Practice:** ACAP recently launched a Community of Practice that is training-related, a virtual community meant to surface shared scheduler solutions across facilities. Training may be discussed within this community, but it is not its only focus. Over time, this program could guide facilities on creating additional training materials to simplify scheduling processes (ACAP, interviews, 2015).
- **Development of a knowledge management system:** Additionally, a knowledge management system is being created, which, although it is not exclusive to training, can facilitate the sharing of training materials across VHA (ACAP, interviews, 2015). This system is planned to be mostly functional (for example, FAQs section, inventory of training tools) by the end of 2015.

While these initiatives touch on several ways to improve best practice sharing, they may not address:

Implementation gaps: The above initiatives may not address the lack of training ownership in the form of a dedicated trainer at each facility with sufficient bandwidth to monitor and deliver training locally.

Scope gaps: The above initiatives, while potentially useful in codifying available best practices and materials already in use at the facility level, may not address the need for more national ownership of scheduling curriculum development, including content, delivery, and resource guidance. They also may not address the addition of experiential or on-the-job training for schedulers.

To fill these gaps, VHA should consider the following recommendations:

8.3.1 Utilize More Initial Training, on-the-job Training, and Experiential Methods to Equip Schedulers for Their Responsibilities

- **Ensure all schedulers, including non-MSAs, are receiving initial training, and also encourage more on-the-job training**. Increase tracking of initial training to ensure schedulers are receiving the mandated topics, and regularly report on training to facility and VISN leadership for accountability. Importantly, this training should include everyone who has scheduling privileges, not just MSAs, as per VHA's 2010 Scheduling Directive, and only schedulers who have received training should receive scheduling privileges on the scheduling system. Create a general on-the-job training curriculum, including time for the scheduler to learn facility- or clinic-level policies and processes and shadow a more experienced scheduler. Development of a competency assessment for schedulers to pass before they can begin scheduling would help ensure the delivery and effectiveness of initial and on-the-job training for schedulers. It would also provide facilities with a view of what gaps the schedulers still need to overcome and prevent schedulers from beginning to work before they are ready. With the implementation of recommendations in Assessment F to reduce scheduler vacancies (for example streamlining the hiring process and relaxing hiring regulations), VHA should be able to ensure schedulers are properly trained for their responsibilities and Veterans receive quality service.
- **Modify the national training curriculum to include more experiential training methods.** Disseminate materials to facilities along with guidance on necessary resources for successful delivery (like trainers, technology, and space). Experiential training should include live scheduling labs at each facility, as well as additional interactive classroom-based scenarios, and interaction with VHA's knowledge management system so schedulers can discover where to find additional resources. These experiential activities may require more trainer time, dedicated space, and additional technology resources than current nationally required training. However, experiential training should result in improved long-term retention of skills and higher performing schedulers.

8.3.2 Reduce Schedulers' Need for Training through More User-Friendly System and Streamlining National- and Clinic-Level Policies and Processes

- Continue to implement interim system improvements like VSE that are already in progress and will make schedulers' jobs easier to master: As mentioned in the Scheduling System subsection 7.3.1, VSE will address some of the software ease of use issues, including the lack of a "single screen" view of a provider's schedule and multiple unintegrated waitlists as well as the inability to support online patient scheduling. By addressing these technology issues, scheduler appointment booking and waitlist management will be more straightforward and thus easier for schedulers to master, potentially reducing the need for scheduler training.
- **Develop more streamlined policies and implementation support for VHA-specific policies such as the use of EWL:** As mentioned in Scheduling Process Subsection 6.3.1, examine existing policies to identify those that are particularly onerous (like recall) or inconsistently implemented across facilities (like EWL) and provide clear guidance on and support consistent implementation across facilities and clinics. This includes development of a user-friendly dashboard to manage lists as well as automation of as many processes as possible (for example, use of text messaging reminders).
- **Minimize unnecessary clinic- and provider-specific rules**: As mentioned in Scheduling Process Subsection 6.3.2, local provider and administrative leadership should be encouraged to eliminate all unnecessary provider- and clinic-specific rules, (for example specific time slots for specific types of patients for certain providers). All necessary rules should then be incorporated into the scheduling software automatically, which would require software system changes as outlined in Scheduling System Section 7. In the meantime, all clinic- and provider-specific rules should be documented within provider profiles and clinic SOPs. This will reduce the learning curve for schedulers switching between clinics.

8.3.3 Leverage Current Best Practice Knowledge and Develop Training Personnel to Make Training Deployment More Efficient

- **Integrate local best practice knowledge into the national curriculum used for initial training, and increasingly facilitate knowledge sharing between facilities**. Establish VHA-level leadership, which could be new positions or existing personnel (for example, the current training department within VA Human Resources), to own development and dissemination of best practice training materials. Specifically, these individuals could identify areas in need of additional training, collect and identify best practice materials already created by the field, improve upon these practices where possible, and disseminate them widely. This training leadership could then develop additional material to fill any remaining gaps. Existing best practice infrastructure, such as the Community of Practice and the knowledge management system, combined with the train-the-trainer program (below), could be used to accelerate best practice dissemination and ensure regular communication with VHA-level training leadership.

- **VAMCs and CBOCs should identify training leads in their facility.** Encourage each facility to have a local training lead and simultaneously organize a committee of training leads from VHACO and from facilities to help create and disseminate experiential training materials. This committee could also support facility training leads in implementing the revised national curriculum and adopt experiential training methods. Training leads could additionally take part in the Community of Practice and be responsible for disseminating materials from the knowledge management system to their schedulers along an appropriate timeline.

This page intentionally left blank.

9 Scheduling Call Centers

9.1 Context & Approach

In accordance with the requirements set out in the Choice Act, this section examines whether the creation of centralized scheduling call centers would benefit the VHA scheduling process.

VHA’s definition of a call center is:

> “A designated point in a VHA facility’s call tree that has two or more staff dedicated solely to answering the phone. Call centers at the VHA have a scope of service of the types of calls they are designed to handle. Call centers can take many forms – from very large call centers, such as the VA Health Resource Center, to small call centers with a few staff embedded in a Community Based Outpatient Clinic” (ACAP, interview, 2015).

Outside of VHA, the typical private sector call center has 50 to 250 employees and receives inbound and makes outbound calls, usually for customer service or sales (Holman et al., 2007). Most private sector organizations (healthcare and other industries) would not consider a group of two staff to be a call center, as VHA currently does (Belfiore et al., 2015). Existing VHA-defined “call centers” (across several functions, not solely scheduling) fall into three main categories:

- National call centers, including the Veterans Crisis Line, Women’s Health, and Smoking Cessation call centers
- Regional call centers, including several Health Resources Centers (HRC) and the Health Eligibility center. Both national and regional call centers are managed by the VA Corporate Business Office
- Call centers related to individual medical centers, which often include scheduling, pharmacy, and nurse triage (ACAP, interview, 2015)

Today, the majority of patient scheduling is conducted by individuals who sit within clinics at VAMCs and CBOCs (and who often have multiple roles that include scheduling and other activities). A portion of patient scheduling[71] is conducted at small call centers that support a facility or a group of facilities.

Within the Choice Act language for assessment E, we were asked to “assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments.”

To conduct this portion of the assessment, our data sources included:

---

[71] 14 percent (Assessment E national data call, 2015)

- A data call for scheduling information completed by 73 VAMCs covering VHA operating and reporting structures for scheduling, scheduler headcounts, self-reported call performance, and call center specialties and responsibilities
- A survey with training and coaching questions for frontline schedulers (N=726) that can be used to compare responses from call centers and clinics. MSA supervisors (N=70) were also asked which metrics they regularly track and their opinions towards scheduling call centers
- National provider-specific call center benchmark data set from Benchmark Portal which includes employee counts, call volume, and performance metrics (Belfiore et al., 2015)
- VHA reviews of telephone services, including the 2014 Telephone Access White Paper and recommendations from other internal studies, including Managing Veterans Access via the Telephone (MVAT)

9.2 Findings

9.2.1 Most VHA Scheduling is Conducted Outside Call Centers; Where They Exist, VHA Scheduling Call Centers are Smaller Than the Provider Average

Scheduling call centers were created by various VAMCs to address local needs to handle call volume and provide patients telephone access. As such, VA has not historically coordinated scheduling call centers on a national scale. Based on the data call, an estimated fourteen percent of VHA schedulers are working outside of clinics and in scheduling call centers nationally, yet there is no comprehensive centrally available information about VHA’s scheduling call centers, including information on:

- How many scheduling call centers exist
- How many schedulers these call centers employ
- What specialties the call centers support
- Which organizations the call centers report to
- What functions the call centers serve.

Simply put by one interviewee who ran a scheduling call center, “It would be nice to know where else there are [scheduling] call centers and talk to them.” This lack of information is, in part, due to the fact that there is no central owner of scheduling call centers at VHA, as scheduling call centers are typically owned by the local facility or region. The MVAT project resulted in a documentation of basic business models related to scheduling (e.g.., centralized call centers versus teams in clinic) as well as initial best practices and options for structuring contact management (e.g., at the regional level) (Managing, 2014). However, because there is no centrally available scheduling call center information on metrics such as number of FTEs per call center and call center-specific performance on average speed of answer, this assessment collected basic information to provide a fact base for VHA.

Fourteen percent of VHA schedulers from facilities that participated in the national data call operate in what VHA considers call centers. The remaining schedulers operate in clinics. Most

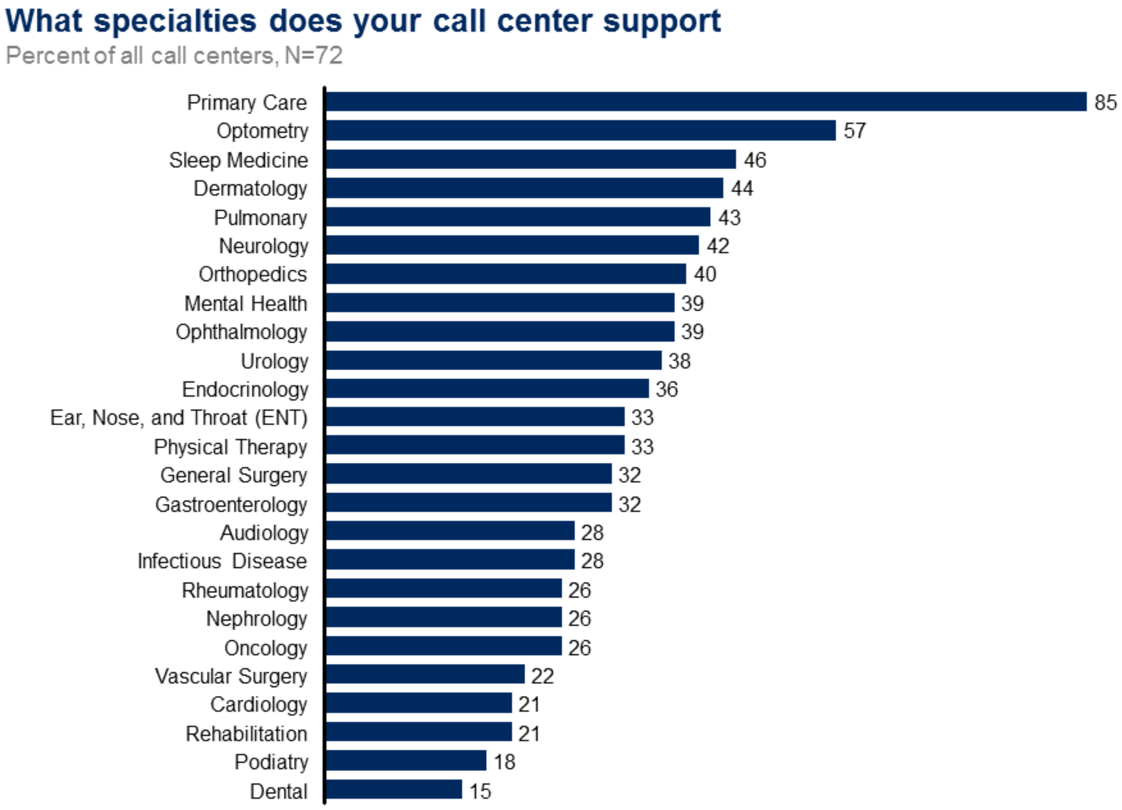
VHA scheduling call centers are fairly small with a median size of 12 schedulers. Eighteen percent of all scheduling call centers have five or fewer schedulers (Assessment E data call; Choice Act site visits, interviews, 2015). VHA scheduling call centers also do not necessarily handle the same type of calls as those of other organizations. Thus, it is probably not appropriate to directly compare the performance of VHA scheduling call centers to industry call center best practices, nor to differentiate them from clinic scheduling. However, for reference, call centers across private sector providers have an average of 28 agents and call centers across industries have an average of 110 agents (Belfiore et al., 2015). See Appendix G.1 for more detail on call center best practices.

9.2.2 Existing VHA Scheduling Call Centers Have Highly Variable Organizational Structures and Scopes of Responsibility

The organizational structure of VHA scheduling call centers varies by location. Sixty-five percent of schedulers who operate out of a call center report to a central administrative office at the facility. Even the names and roles of these central groups differ across facilities: for instance, names of central groups include Health Administration Service (HAS), Medical Administration Service (MAS), the Business Service Line, and Ward Administration. The remaining 35 percent of call center schedulers report to a clinical service (such as Cardiology) despite the fact that they do not operate out of a clinic.

As shown in exhibit 9-1, VHA scheduling call centers support various specialties depending on the facility to which they are connected. Primary care is the most common specialty supported. 85 percent of scheduling call centers support primary care and 52 percent of all call center schedulers are focused solely on primary care. Optometry, sleep medicine, dermatology, and pulmonology are also common specialties managed by call centers.

Figure 9-1. Response of Facilities Asked: "What Specialties Does Your Call Center support?", n = 72 facilities



SOURCE: Choice Act Assessment E Data Call

Figure 9-1 shows the portion of call centers that serve various medical specialties. Some facilities will serve only a few (or just one) specialty, while others will serve almost all of them. Source: Assessment E national data call, 2015.

Decisions on which specialties scheduling call centers support are made locally and thus specialty coverage varies significantly. One scheduling call center visited only supported primary care and mental health. Another scheduling call center did not support primary care, but did support most specialties, including oncology, pulmonology, and dermatology.

As shown in exhibit 9-2, some functions are more common across scheduling call centers than others. Eighty-five percent of all scheduling call centers can cancel patient appointments. Booking follow up appointments and routing calls are also both fairly common across VHA. In contrast, functions, such as scheduling consults and dealing with overbooking, are much rarer.

Figure 9-2. Response of Facilities Asked: “What Functions Does Your Call Center Support?”, n = 72 facilities

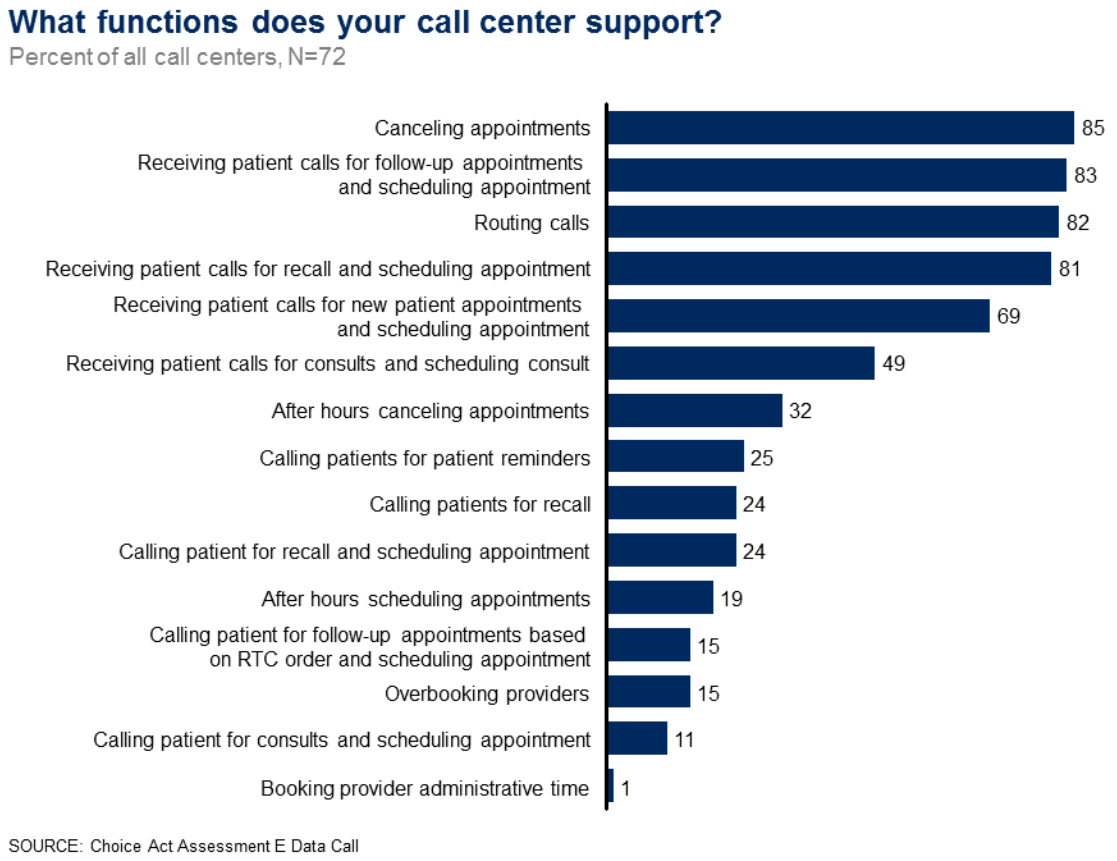


Figure 9-2 shows the portion of call centers that serve various functions. The figure shows that several functions (such as “canceling appointments”) are performed by almost all call centers, while some other functions (such as “overbooking providers”) are performed by only a few. Source: Assessment E national data call, 2015.

9.2.3 VHA Does not Consistently Measure Performance Across its Scheduling Call Centers or Clinics

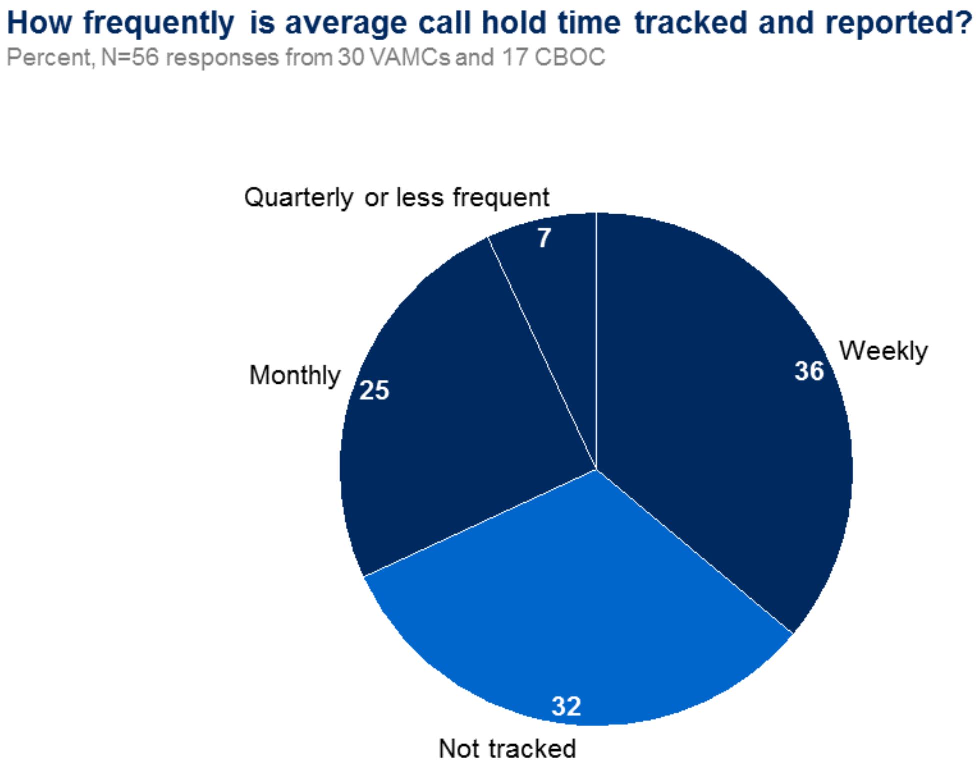
VHA does not centrally track information or performance metrics on all scheduling call centers[72]. As a result, some scheduling locations do not track any metrics. In many cases, this is because the scheduling location does not have the telephone systems, such as an Automatic Call Distributor (ACD), to track and record this data. Other locations track various call metrics, but do not report them centrally because they are not required or not “asked” to do so.

---

[72] VHA does however, track call metrics for all VAMCs with greater than 5000 unique patients (regardless if it has a call center or not). However, it is not tracked which data are from call centers and which are not (ACAP, interviews, 2015)

Across both call centers and clinics, some VHA scheduling locations measure first call resolution (FCR) and average call hold time, but these measures are not tracked or defined consistently, as captured in the figures below. FCR is a typical call center quality metric that measures the percent of customer issues resolved within one phone call into the service center (Madsen, 2012). Hold time is a common quality metric to ensure callers do not have a long wait time to speak to an agent (Chaturvedi, 2005).

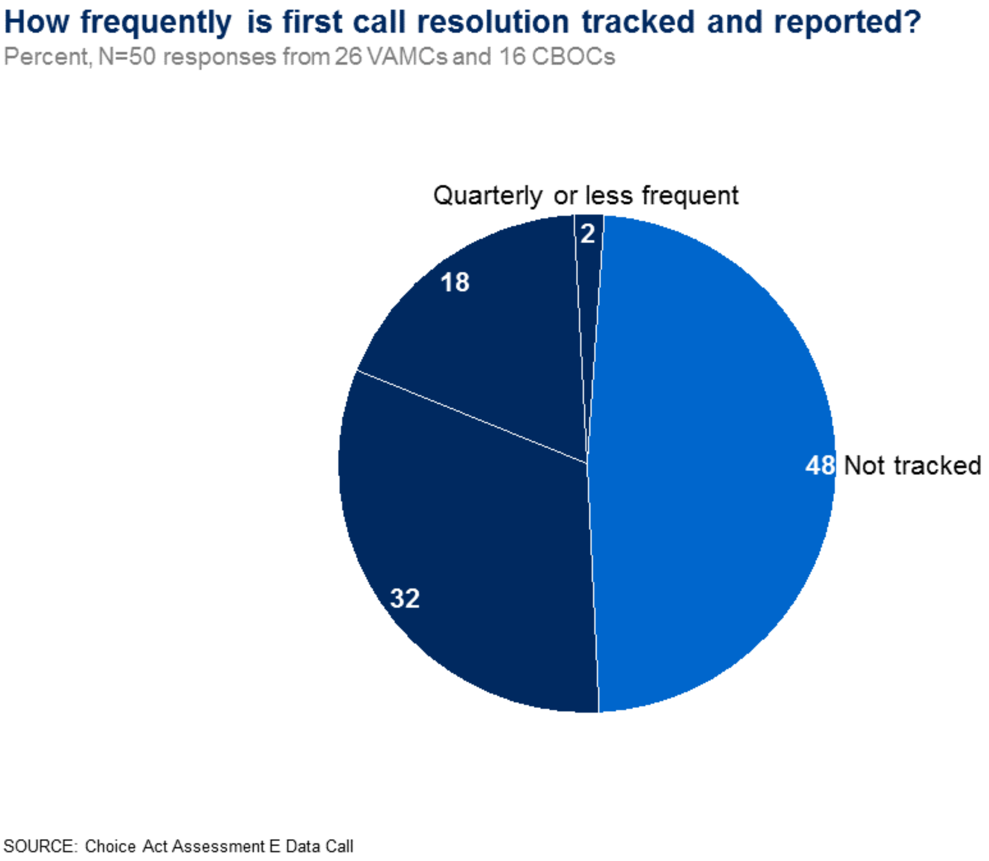
Figure 9-3. Response of Clinic Administrators Asked: "How frequently is Average Call Hold Time for Patients Tracked and Reported?", n = 71 from 46 VAMCs and 20 CBOCs (certain facilities submitted multiple responses)



SOURCE: Choice Act Assessment E Data Call

Figure 9-3 shows the frequency with which average call hold-time is tracked and reported at 46 VAMCs and 20 CBOCs who responded to the VHA survey. Average call hold time measures the time patients spend on the phone waiting to speak with a representative. The figure shows that the tracking and reporting of this metric is highly variable, with 35 percent of call centers tracking it weekly and 31 percent not tracking it at all. Source: Assessment E national data call, 2015.

Figure 9-4. Response of Clinic Administrators Asked: "How Frequently is First Call Resolution Tracked and Reported?", n = 71 from 46 VAMCs and 20 CBOCs



SOURCE: Choice Act Assessment E Data Call

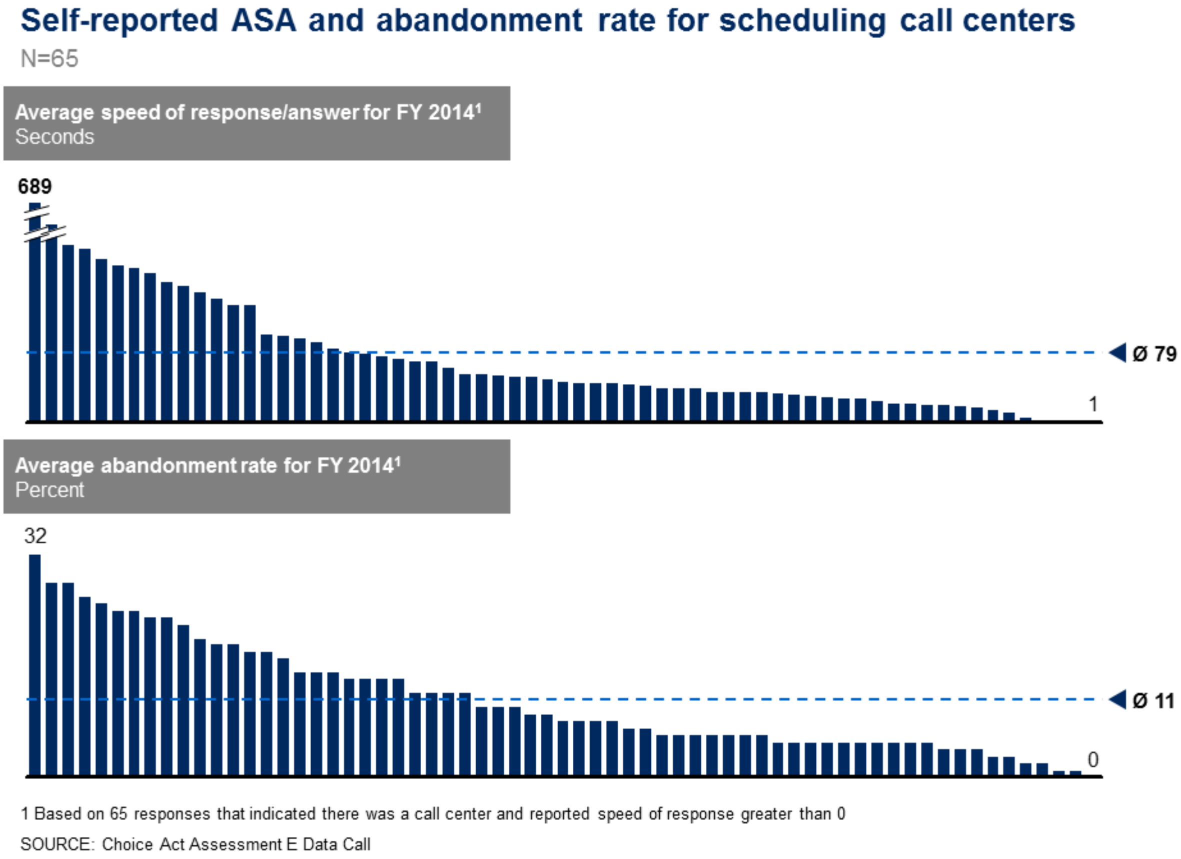
Figure 9-4 shows the frequency with which first-call resolution rate is tracked and reported at 46 VAMCs and 20 CBOCs who responded to the VHA survey. First call resolution rate measures the percent of calls that can be resolved without a transfer to an additional representative. The figure shows that the tracking and reporting of this metric is highly variable, with 23 percent of call centers tracking it weekly and 35 percent not tracking it at all. Source: Assessment E national data call, 2015.

9.2.4 VHA Call Center Performance is Below Industry Average Where it is Measured

Call center scheduling and clinic scheduling within the VHA cannot easily be compared, as the data does not define which data points are from call centers and which are from clinics. Additionally, there is no clear data on the number of schedulers per scheduling location. Thus, it is difficult to contextualize performance for any facility, regardless of call center structure. For example, a site with large call volume but with the same number of schedulers as a site with small call volume would understandably compare poorly with the smaller-volume site. Thus, this section of the report compares the current performance of VHA-defined scheduling call centers and clinic scheduling points with VHA's own targets.

Because it is not measured centrally for all scheduling call centers, this assessment collected performance metrics via a data call. Data available shows that average speed of answer (ASA) in scheduling call centers that participated in the data call was 79 seconds and average abandonment rate is 11 percent. In comparison, average private hospital call centers achieve a 32 second ASA and a 5.15 percent abandonment rate (Belfiore et al., 2015). This signifies that patients are waiting longer to reach a scheduler at VHA, and that patients often give up and hang up the phone.

Figure 9-5. Self-Reported ASA and Abandonment Rate for Scheduling Call Centers; n=65



1 Based on 65 responses that indicated there was a call center and reported speed of response greater than 0

SOURCE: Choice Act Assessment E Data Call

Figure 9-5 shows the average speed of answer and the average abandonment rate for 65 call centers in 2014. The figure shows the average speed of answer is 79 seconds. The figure also shows that the average abandonment rate is 11 percent, meaning more than one in 10 callers abandons their call before being served. Source: Assessment E national data call, 2015.

9.2.5 Health System Scheduling Call Centers Seek to Maximize Performance by Leveraging Scale

9.2.5.1 Many Private Sector Provider Scheduling Call Centers are Large and Centralized

Since 2008, Cleveland Clinic has had a centralized scheduling call center with over 100 schedulers (Rodak, 2013). Centralization has led to a 28 percent decrease in abandoned calls, a decreased scheduling error rate, increased physician utilization of scheduling templates, and a 12 percent increase in the number of patient visits. According to the executive director of the call center, "By centralizing, we were able to capitalize on economies of scale," (Rodak, 2013).

Cleveland Clinic’s call center provides a model for VHA; they enhanced their operations by establishing centralized call centers and achieved performance improvements as a result. As shared by Cleveland Clinic’s Executive Director of the scheduling call center, "Centralized models for scheduling increase accuracy and patient access. We believe other hospitals and health systems can adopt this model and achieve similar results" (Rodak, 2013).

Geisinger Health System also has large-scale scheduling call centers in addition to its clinic schedulers who handle the processing of referrals, prescriptions, and medical records as well as book follow-up appointments as patients they leave their appointments (Geisinger interview, 2015). It has 154 schedulers across two call center locations off-site from their hospitals, completing 2.3 million outbound and inbound calls each year. They also have 26 call center agents who work from home but are virtually part of the main call centers and receive calls from the main phone queue. They support comprehensive scheduling functions for all specialties except for primary care, which is scheduled in the clinic. They also cover ancillary services such as lab testing, radiology, and procedural testing (for example, cardiac testing), but do not schedule surgeries. Schedulers are grouped into 14 “pods,” each focused on a specialty or group of similar specialties. For instance, there are three medicine pods, including one that serves gastrointestinal, nutrition, and dermatology. Staff are trained to primarily support one pod and cross-trained to support one or two other pods as backup. Supervisors are grouped with pods in a ratio of 10 to 16 schedulers for every one supervisor.

9.2.5.2 Private Sector Scheduling Call Centers Measure Performance Consistently and Comprehensively

Geisinger Health System has a “very metric-driven” call center and scheduling organization, according to an executive interviewed for this assessment (Geisinger interview, 2015). Each scheduler receives a daily scorecard with his or her scheduling and call performance metrics. Schedulers are also offered an annual incentive of up to nine percent of their salary based on individual performance across a group of metrics that varies each year. In 2015, the incentive is based on the performance of the percentage of calls answered within 30 seconds, average answer delay, slot utilization, and percentage of hospital discharges that are scheduled within two days of discharge.

When asked how Geisinger Health System was able to successfully shift from a decentralized to a centralized model for scheduling, the executive interviewed said, "It's very hard, but if you provide results and you're transparent with information on your performance, you can make it work.” This approach focused on proving the concept via improved performance, is similar to that of the VA New York Harbor Healthcare System, which has one of the largest and highest-performing scheduling call centers in the country. In 2014, this VAMC had the best abandonment rate performance (1.0 percent) and fourth best ASA (10.2 seconds) across all VAMCs (SAIL, 2014). This facility shared that one can “make the case [for scheduling call centers] by comparing call center metrics and clinic metrics,” because call centers will outperform clinics on scheduling and phone metrics.

To ensure the quality of patient interactions with schedulers at Cleveland Clinic, calls are monitored and reviewed by supervisors and coaching staff. In order to measure the satisfaction, patients have the option to take an after call survey to rate their experience. Data collected from this survey is then used as a patient satisfaction metric in the call center. Patients are asked the following questions (Cleveland Clinic Interactive Voice Response, 2015):

- “Was your request to schedule or reschedule completed?”
- “Were you satisfied with the location of your appointment?”
- “Where you satisfied with the time of your appointment?”
- “Were you satisfied with the provider you were scheduled with?”
- "Was the person you spoke with courteous?”
- “Was the person you spoke with knowledgeable?”
- “On a scale of one to five, how satisfied were you with the overall experience?”

9.2.5.3 Private Sector Scheduling Call Centers Have Tools That Optimize the Scheduling Process

Historically, each clinic at the Cleveland Clinic had its own schedulers who booked appointments for only their assigned service areas. To ensure provider-specific scheduling rules and preferences were accommodated, schedulers followed rules from paper notes and manuals. Today, functionality in their scheduling system guides schedulers to the appropriate physicians based on key words the patient uses. For example, if the patient mentions a headache, the scheduling system triggers a series of questions about headaches for the scheduler to ask the patient. Answers to these questions automatically direct the scheduler to the appropriate department and patient. This allows schedulers to book appointments for a wide spectrum of specialties and providers (Rodak, 2013). Each scheduler at Cleveland Clinic can book an appointment with any specialty or procedure, except hematology, oncology, cardiology, and operating room procedures.

At Geisinger Health System, the leadership of the scheduling call centers credit technology as part of its success, noting that the call center technology “wouldn’t be available in a decentralized model” because it is cost prohibitive. He added, “without a strong workforce management tool, we wouldn’t know where our peaks and valleys [of call volume] are” (Geisinger interview, 2015). Geisinger Health System’s call center has workforce management software that tracks and projects call volume, allowing managers to adjust the staffing of schedulers accordingly.

9.2.6 Larger Scale Call Centers Have Better Performance Outcomes

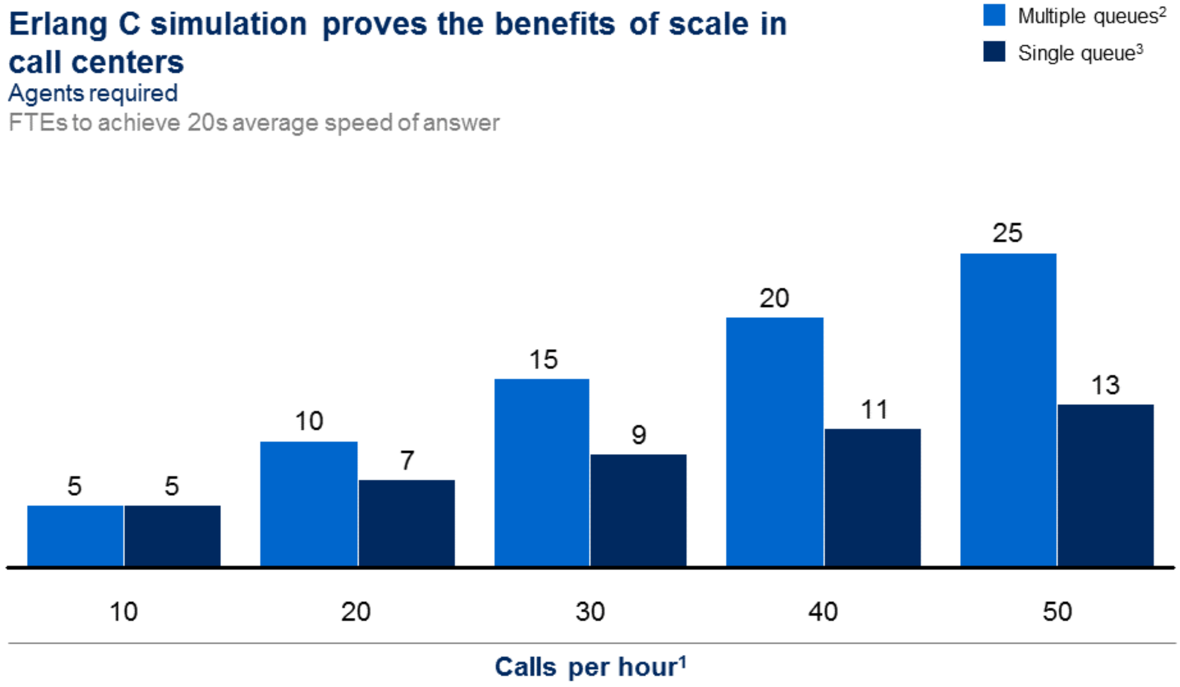
9.2.6.1 Centralizing Scheduling Could Improve Customer Experience for Patients and Could Reduce Staffing Needs

The goal of managing capacity in any call center is to efficiently match the available resource capacity (supply of schedulers) against the incoming call volume (demand), while maintaining a desired service level (average speed of answer). This can be particularly challenging because calls arrive randomly and are thus hard to predict. In order to best estimate the required capacity and service levels, statistical queue modelling tools are used. The most prevalent model, the Erlang C, is a modeling formula used in call center scheduling. Erlang C is based on three factors:

- The number of agents (schedulers) answering calls
- The number of incoming calls (arriving at random times modeled as a Poisson distribution)
- The average amount of time it takes to serve each call

Given a set volume, average call duration, pattern of calls, and desired speed of answer, Erlang C can be used to understand inherent tradeoffs between service levels and staffing requirements.

Figure 9-6. Benefits of Scale in Call Centers; FTEs Required Based on Queue Characteristics



1 Assumes 600s average handle time
2 Number of queues scales with call volume, each queue handles 10 calls / hour
3 All call volume merged in one queue

SOURCE: Chromy, 2011

Figure 9-6 shows a relationship between call volume (calls per hour) and agents required to handle that volume. It demonstrates that the resource need is significantly lower if all call volume is pooled in one queue as opposed to handled in multiple queues of identical and constant capacity. As simulated in an Erlang C model, a queue of 10 calls/hour at 600 second call duration needs five agents staffed in order to reach a 20s average speed of answer. Handling times that volume (50 calls/hour) in five identical queues requires 25 agents, while pooling the same volume into one single queue would require only 13 agents. The capacity savings of 12 agents can be redeployed to improve service levels or increase staffing in other queues. Source: Erlang C simulator, accessed June 5, 2015.

The exhibit above illustrates staffing benefits, controlling for service levels, achieved from pooling call volumes using the Erlang C model. Calls can be received at the same physical location or can be pooled virtually. For instance, a queue of 10 calls per hour at a 600 second average call duration needs five agents staffed in order to reach a 20-second average speed-of-answer. Therefore, handling five times that volume (fifty calls per hour) in five identical queues requires 25 agents. In contrast, pooling that same volume into one single queue would require only 13 agents. The reason for this is that at an increased scale, the real-time matching of calls to call agents is much more efficient, given the random nature of call arrival patterns (Chromy, 2011). This explains why Cleveland Clinic requires fewer schedulers now that it has created a centralized call center (Rodak, 2013). In the example above, the organization could also choose to pool calls into one queue but still maintain all 25 of its agents. Service metrics would improve significantly (approaching 0 seconds ASA) because only 13 agents would be needed to meet the previous service levels (Chromy, 2011).

VHA is not currently leveraging potential economies of scale in scheduling. Many scheduling phone calls are handled in decentralized clinics manned by one to five schedulers (Assessment E data call, 2015), who are also performing multiple other functions, and therefore possibly away from the phone. This means that VHA is not performing at the service level it could achieve by increasing centralization. Alternatively, this finding shows that with the same service levels as today, VHA could reduce the number of schedulers needed. Implications for the number of required schedulers are particularly relevant because 23 percent of approved scheduler positions are currently vacant as mentioned in Scheduling Process Section 6, Figure 6-7.

Increasing call center scale could also improve the customer experience by creating a single location for patients to call into. Today, patients calling to schedule appointments often have to call different phone numbers, potentially navigate different parts of the phone tree, and talk to different individuals to schedule appointments across various clinics. In fact, of the site visit locations participating in the pre-site questionnaire, only 21 percent have a single, centralized phone number for patients to call for appointment scheduling (Choice Act Pre-site visit questionnaire, 2015). Further, as noted in Scheduling Process Section 6, process vary significantly across clinics in the same facility, which can complicate the scheduling process further. This is particularly challenging when a patient is trying to schedule multiple appointments on the same day because each scheduler may not be able to book, let alone, see appointments in another clinic. In contrast, call centers enable the patient to call one phone number and talk with one scheduler. That scheduler can book and coordinate multiple appointments.

VHA high-performance example: Detroit VAMC
Detroit VAMC shared that they strive to be a "one stop shop" where patients can make almost all of their appointments through calling a single phone number and phone tree branch into the call center. VA New York Harbor Healthcare system, which has 25 schedulers serving three areas of New York City, is one of the highest performing VHA scheduling locations in terms of ASA and abandonment rate (SAIL, 2014). The scheduling call center for the VA New York Harbor Healthcare System has one central, toll free scheduling phone number, but also provides "warm transfers" to nurse triage and pharmacy offices so that the patient does not need to place another call (Detroit Scheduling Call Center, interviews, 2015; New York Harbor Healthcare System, interviews, 2015).

Many administrative leaders at VAMCs believe that shifting some scheduling workload to call centers relieves the burden on in-clinic schedulers and allows them to focus on the patient experience. Select quotes from site visits detailing the relationship between call center scheduling and clinic scheduling include:

- "In-clinic MSAs focus on patient interaction as well as scheduling ... [The call center] has minimized missed opportunities and abandoned calls."
- "All schedulers appreciate the presence of the Call Center because it removes a substantial set of tasks from their responsibilities"
- "[The call center] lightens [the] call workload of clinic-based MSA"

Not only do call centers improve the patient experience of calling in to schedule an appointment with VHA, they also may improve the in-clinic experience of Veterans by reducing unnecessary phone traffic that disrupts care. As mentioned in Scheduling Process Section 6, VHA schedulers must juggle many tasks in the clinic. These tasks include things that are unique to VHA, such as wait time capture and waitlist management. This can result in challenges balancing various tasks such as checking patients in, answering phones, and booking appointments. "There are so many distractions it is easy to make a mistake," according to one manager interviewed on a site visit. By allowing some scheduling tasks to be completed outside of the clinic, clinic schedulers may have more time to focus on the patients that are physically present in the clinic.

Finally, creating large call centers across the country and queuing calls across them could provide longer hours of operations. By routing calls across regions, an Eastern time zone VHA could provide phone coverage three hours after the end of its business day by routing calls to the west coast. Routing of calls across time zones could also support 24-hour coverage.

9.2.6.2 Centralized Scheduling Call Centers Have Lower per-Unit Resource Costs and put Less Stress on Space-Constrained Facilities

Today, most schedulers operate out of the facilities they serve (for example, VAMCs, CBOCs), either sitting in the clinic they schedule for or in an on-site space designated as the call center. As mentioned in Assessment K's report, VHA facilities are particularly space constrained with a projected $11 billion on construction projects attributed to space needs over the next ten years (total capital need is $52 billion). However, relocation of a portion of schedulers across VHA to space outside the main clinical facilities could create a material amount of space.

Placing staff outside of facilities could also present an opportunity to hire in locations where there is a greater availability of qualified schedulers. Differences in location can have large staffing implications. For instance, discussions with the Palo Alto VAMC highlighted that the high cost of living in Palo Alto was a major issue. One administrator shared "It is hard to hire a GS5 person at that salary in Palo Alto, but could in Reno." This issue has led leaders in Palo Alto and Reno to explore the creation of a region-wide call center spanning a portion of VISN 21. This effort aims to leverage locations where there is a lower cost of living, and thus lower turnover, in order to better service phone calls.

Additional central scheduling call centers could also lead to improvements in procurement of hardware, software, and telephony costs (Paulding, 2013). For instance, Xerox estimates that consolidating operations can achieve five to ten percent technology savings, driven by platform and network savings, shared customer relationship management applications, consolidated customer self-service applications, improved call routing efficiencies, and optimized agent desktop tools (“Contact,” 2013). Technology cost efficiencies are achieved in larger call centers “because more agents are taking advantage of the same core set of materials. The use of one software platform can spread a single software license to all agents in a center” (Houser, 2015).

9.2.6.3 Larger Scale Call Centers can Provide More Coaching, Training, and Career Options Than Clinics

Across industries, larger scale call centers generally provide in-depth coaching for their frontline staff. This is because managers are co-located with staff and can spend significant time with them (Houser, 2015). At VHA, schedulers working in a call center were almost three times as likely as peers located in clinics to report receiving more than five hours of one-on-one or group coaching and feedback each week by their managers. Further, schedulers in call centers also reported receiving more on-the-job training than in-clinic schedulers (49 percent to 35 percent respectively). As current VHA scheduling call centers are small, these coaching benefits might be even greater in a larger scale call center. This finding is especially relevant as training is a crucial element of ensuring appropriate scheduling practices, as detailed in the Scheduling Process and Training Sections.

Below are site visit quotes from clinic administrators who do not operate in a call center responding to the question, “How much time do you spend with schedulers discussing how to improve the scheduling process, mentoring or training, or discussing new or changed policies?“ As the quotes demonstrate, not all administrators are spending significant time coaching.

- “[We have] weekly MSA meetings [and] daily one-on-one training when needed”
- “…No regular discussions because [schedulers are] doing well”
- “There is weekly, open communication about performance metrics, daily audits of scheduler performance and work plans for improving individual MSA performance”
- “Monthly for one-on-ones to review performance, solicit improvement ideas, review any audit findings”
- “[I spend] 10-15 minutes per day supervising and giving performance feedback. I spend most of my time in meetings”
- “Not a lot of time to do this; [it’s] ‘feast or famine’ based on availability” (Choice Act site visits, interviews, 2015)

Increases in scale also allow larger call centers to offer resources that a 10 or 15 person call center could not, in order to optimize operations. For instance, across industries, larger call centers typically have team leaders, quality analysts, reporting analysts, network analysts, workforce managers, telecom analysts, recruiters, and trainers (Bergevin et al., 2010). Individuals in these roles can ensure the call center runs as efficiently as possible and enable supervisors to focus on coaching.

Paired with additional management layers (such as supervisors and managers), non-frontline call center roles mentioned above provide career options that may not exist today for VHA schedulers. Twenty-three percent of approved and funded scheduler positions are vacant and 13 percent of MSAs turnover each year (VHA Healthcare Talent Management Office Data, 2015). New promotion options in call centers could provide much needed relief to managers who share that "[schedulers] leave the second they get another opportunity here at the VA or anywhere else" (Choice Act site visits, interviews, 2015).

Providing career advancement options for schedulers is one reason Geisinger Health System uses centralized call centers. It is also a major focus of their organizational structure. Their scheduling call center offers a career ladder with four levels of scheduler positions. New schedulers are at "level 1" for about six months until they are fully trained. "Level 4" schedulers are those that Geisinger Health System is grooming for management positions. They "get involved in policy development, training process, process improvement, and are required to pass a National Association of Healthcare Access Management (NAHAM) certification" (Geisinger interview, 2015). Additionally, schedulers at the scheduling call centers are typically recruited into other roles in the call center including quality assurance, training, provider template creation, workforce management, and analysis.

9.2.7 Implementation Difficulties Raised by Facility-Level Staff Highlight Prerequisites for Larger Scale Call Centers

Issues raised about the small scheduling call centers that exist today can inform the design of future, larger call centers. During site visit interviews, 76 percent of call center schedulers and supervisors interviewed[73] shared barriers specific to call centers. Of those barriers shared, 32 percent[74] cited challenges learning the different rules and preferences of various clinics. For instance, one call center employee said "different rules for each clinics makes it so hard to book, [it] even varies by provider." This challenge highlights the needs to standardize processes across clinics or introduce an improved system that can automatically incorporate various clinic practices, like Geisinger Health System and Cleveland Clinic did, before instituting a larger scheduling call center. Challenges with clinic variation also might explain why larger call centers have not been pursued in the past, because high variation exists today.

If VHA were to adopt a standardized approach, this could address concerns that were raised by senior administrative leaders including:

- "[Call center schedulers don't] understand the nuances of facilities and specialties."
- "Call center personnel need to have knowledge of the patients, clinics, providers (nurses, doctors, pharmacists, etc.), facility, etc., so they have an understanding of context and circumstances and can provide a personal touch."
- "The major barrier is that you need schedulers who know the facility, the clinics, the providers, and the patients." (Choice Act site visits, interviews, 2015).

Twenty percent of call center supervisors and schedulers[75] identified the phone system, particularly the inability to pull detailed data about patient calls from the phone system, as a major challenge. One scheduler shared “through the system there is no way to determine the reason for each call and other important information.” It might be possible to sustain a small call center with minimal phone technology, however larger VA call centers tend to need more sophisticated tracking (HRC, interview, 2015).

---

[73] Site visit call center scheduler and supervisor interviews, N=19 of 25 respondents

[74] Site visit call center scheduler and supervisor interviews, N=8 of 25 respondents

[75] Site visit call center scheduler and supervisor interviews, N=5 of 25 respondents

Forty-four percent of call center supervisors and schedulers[76] mentioned not having adequate staffing to handle the high call volume. This may be because scheduling management did not adequately staff the call center or because of overall staff shortages. As discussed, larger call centers could more efficiently leverage existing staff and minimize some of this challenge.

Twelve percent of those interviewed[77] cited the lack of physical space. As mentioned above, if scheduling call centers are created outside of the current medical facilities, call centers can use greater space, and facilities can reclaim much needed clinical and office space. Other barriers mentioned above, including the poor phone system, inadequate staffing, and the lack of physical space could likely be addressed by increasing the scale of the call center and by following other recommendations throughout this report.

Facility-level staff also see benefits from the current, small-scale scheduling call centers, even though they are sub-scale. Quotes from scheduling staff across site visits and the survey include:

- “[Call centers] provide coverage when schedulers may be on leave or when clinics are very busy…and help with breaks and lunches. Schedulers get a better understanding of various clinics and their processes. Decentralizing will not provide adequate coverage in clinics.”
- “[The] call center has reduced some of the administrative/call burden off of certain primary care and specialty care schedulers.”
- “[The call center has] helped tremendously -- clerk at front desk can now focus on patients in front of them”.

9.2.8 Outside of Scheduling, VA has Proven it has the Capabilities to Sustain Call Centers at Scale

In place since 2002, the VA National Call Center—Health Resource Center (HRC) provides an example of what a large-scale VA scheduling call center could look like. HRC is a call center that “provides customer service and support…regarding VA health benefits, eligibility, billing and pharmacy-related inquiries” (HRC, interview, 2015).

HRC sits within VHA’s Chief Business Office (CBO) and employs over 1,000 people. It responds to over six million Veteran inquiries by way of phone, email, and web chat each year. Despite agents working across multiple locations (Topeka, Kansas, Waco, Texas, and Canandaigua, New York), it has developed standard operating procedures (SOPs) and job aids to optimize processes. HRC has existed since 2002 and utilizes a sophisticated tracking and workforce management tool that allows managers to plan agent staffing needs based on projected call volume.

---

[76] Site visit call center scheduler and supervisor interviews, N=11 of 25 respondents

[77] Site visit call center scheduler and supervisor interviews, N=3 of 25 respondents

The HRC has a separate training center and offers between four to five weeks of training for all new employees, including two weeks of on-the-job training. Once agents are fully trained, their supervisors audit ten calls per month to ensure no additional training is needed.

HRC managers have mentored other VA call centers that are trying to build scale, including the Veterans' Crisis Line and the National Call Center for Homeless Veterans. According to a Choice Act interview, HRC was the first federal governmental call center accredited by the International Customer Management Institute and therefore provides an example for what VA scheduling call centers could eventually achieve.

9.3 Recommendations

As these findings suggest, VHA could benefit from enhanced use of call centers for scheduling, consistent with recent findings of other reports. For example, the NVTC recommended that VHA "should centralize the call and scheduling functions into facility-based call centers with extended hours of operations", and "invest in more current and usable telephone systems" ("Opportunities," 2014). A 2012 GAO report recommended that VAMCs implement best practices to improve telephone access for clinical care (this included but was not limited to scheduling). An internal 2014 report on PACT call centers recommended the establishment of additional call center metrics, the creation of a metric to measure Veteran satisfaction with call centers, and the need for appropriate staffing to handle patient phone calls. Previous reports have not made specific recommendations on how these efforts would be implemented generally nor how they would apply more specifically to the scheduling context. See Appendix G.2 for additional detail on past reports related to call centers.

According to interviews with VHA leadership, a number of initiatives have been launched to address some of the challenges presented above. These initiatives address a broad range of call centers (though none of the following efforts are exclusive to scheduling), and include:

- Efforts to study how VA call centers should optimize their operations and pilot new solutions, including:
    - **Leveraging learnings from the MVAT project**: The Managing Veterans Access via the Telephone (MVAT) working group was launched in September 2013 out of the Telephone Access and Contact Management (TACM) office to capture best practices related to people, process and technology components found throughout VA call centers. The project lasted for one year and documented where many of the call centers operate, as well as their staffing composition and services (MyVA, Meeting Minutes, 2015). The three stated learnings regarding existing VA call centers include:
        - There is no standard best practice for how to handle calls from Veterans
        - There are pockets of excellence throughout the VISNs and VAMCs, but these successes are not often shared outside of the individual VISN or VAMC

        - Each VISN and/or VAMC has adapted their call management model to meet their local Veteran population needs, using the resources they have available to them (MyVA, Meeting Minutes, 2015).
    - **Piloting of solutions via IVAT:** Improving Veterans Access via the Telephone (IVAT) was launched in September 2014 and will run until September 2015. It intends to build on learnings from MVAT. As part of this effort, VISN 19 is piloting new concepts with support from the IVAT team, which will help inform planned revisions to the Telephone Improvement Guide (VHA Telephone Access White Paper, 2014).
- Efforts to convene VA call centers in order to create a centralized understanding of the VA call center footprint and share best practices, including:
    - **Establishment of a VA-wide call center task force:** For the first time in VA history, owners of major call centers are coming together to create a common understanding of the current state of call centers at VA and share information on best practices. The kickoff meeting was in April of 2015 at the HRC call center in Topeka, Kansas. Many call centers sent representatives, including Caregiver Support, Women's Health, Coaching into Care, and the Combat Call Center. Leaders from the Office of Veteran Experience and OI&T also attended. The stated goal of the first meeting was threefold: allow call centers in attendance to network with one another, create a sense of unity surrounding contact management, and understand the missions of each call center in attendance (MyVA, Meeting Minutes, 2015).
- **Efforts to directly improve the Veteran experience of navigating call centers, including:**
    - **Exploration of a single phone number for Veterans:** Since October 2014, The Veterans Experience Office, under guidance from Secretary Robert McDonald, is examining the more than 900 Veteran-facing, toll-free phone numbers that exist today and what would be needed to provide a single 1-800 number for Veterans or a "311" style service to direct Veterans to the appropriate level of service (MyVA, Meeting Minutes, 2015).
    - **Simplification of medical center phone trees:** In 2012, the VHA National Leadership Council approved the implementation of a standardized telephone tree at all VAMCs. The goal was to improve telephone access and the service experience of Veterans calling into medical centers. This new tree includes a 15 second introduction and simplified menu options designed to easily channel the patient to the appropriate area. The first set of menu options are standardized across VAMCs, however the second and third levels can vary by facility. Implementation was expected at all locations as of October, 2013 (VHA Telephone Access White Paper, 2014).

If successful, the above initiatives would result in a better understanding of how call centers operate at VA and what best practices exist. However, further changes would also be required to improve call center performance based on potential gaps, including:

Implementation gaps: While efforts to simplify the navigation of the phone system at VA/VHA are a necessary step for improving a Veteran's experience with the system, it is not clear how the assessment of the current state as part of MyVA will translate into action. Given that VA is early in the process of its MyVA effort, which would affect these initiatives, we were not able to ascertain how they will be addressed or how the implementation would occur.

Scope gaps: Due to the early stage nature of the VA call center taskforce, it was not possible to assess the degree to which this effort will encompass facility-based scheduling call centers. We were also unable to assess the timeline against which the taskforce will be assessing call center operations, making recommendations and setting up for implementation.

To address these gaps, as noted below, VHA should consider consolidating its leadership structure for call centers, building a plan for more call center capacity, and establish stronger performance management systems at large call centers and across all locations that engage in scheduling. Specifically, VHA should consider the following recommendations:

9.3.1 Designate a Central Owner for Scheduling Call Centers

Today, VHA scheduling call centers usually report to facilities and there is no central owner of scheduling phone operations across VISNs (though the VHA Telephone Access and Contact Management Office supports the field through a matrix role). In contrast, call centers in other parts of VA and in leading private sector institutions report to one organization. A central owner of call centers should:

- **Coordinate with the ACAP office:** Close coordination between ACAP and a central owner will be required to create standard operating procedures for the call center that reflect the VHA's scheduling best practices as well as national policy.
- **Leverage learnings from existing call centers:** VHA scheduling call centers need to operate at the high level of performance established by other VA call centers (like HRC). A central owner should therefore coordinate with existing VA call centers as well as the VA Call Center Task force to implement proven practices where relevant.
- **Partner with the larger VHA scheduling call centers that exist today**: Larger scheduling call centers, such as the one supporting the New York City VAMCs, can serve as a model and thought partner for implementing successful operations at a VHA scheduling call center. Thought partnership should explore topics such as staffing ratios, division of specialties amongst schedulers (for example, pods), investment costs, and phone tree simplification.
- **Consider partnerships with private sector scheduling call centers**: Institutions with large scheduling call centers, such as Geisinger Health System and the Cleveland Clinic, can provide necessary guidance on how to achieve more standardization while also allowing clinic-specific practices. They can also share advice for building organization support for call centers.

9.3.2 Design Scheduling Call Centers that Can Provide Expanded Services for Veterans Relative to Current State

As discussed, today's VHA scheduling call performance is below benchmark, but could likely improve by the use of larger scale call centers, through either co-location of schedulers or through virtual centralization. VA should therefore launch an effort to establish larger regional scheduling call centers. This effort should:

- **Evaluate which responsibilities lend themselves to centralization:** Some responsibilities, including those requiring in-person interactions with a patient or provider (for example, patient check-in, follow-up appointments booked while in office), should remain in the clinic. Other responsibilities (like cancelling appointments after hours, patient reminder calls, and new patient appointment scheduling) do not require face-to-face interactions and are or could be more standardized across locations, making it easier to support from a call center environment. ACAP should further analyze the complete set of scheduler responsibilities and assess which can be shifted to a larger scale call center based on the ability to standardize level of complexity, and need for in-person interaction with a provider or patient.
- **Assess which specialties should be placed in the call center first:** All specialties could likely be scheduled centrally as they are across some private sector health systems. However, some specialties (for example, primary care) may have fewer types of appointments and therefore are easier to initially support with an at scale call center. Further, some specialties (like optometry) have much higher volume of appointments than others, so there may be greater benefits of moving these to call centers first. ACAP should further analyze all VHA specialties and determine which ones could most easily be supported by large-scale call centers, and which may require more time to transition.
- **Analyze the appropriate degree of centralization:** ACAP should project the total volume of calls that could be handled by national, large-scale call centers. This projection should be based on the number of responsibilities and specialties that ACAP determines can be supported centrally and how much VHA decides to increase the standardization of scheduling processes. ACAP can then project the number of necessary call center schedulers based on this call volume. Leveraging learnings from the VA Call Center Task Force, ACAP can then determine the number of call centers needed and the degree of required centralization (such as large regional call centers tied to MyVA regions).
- **Research possible call center locations and costs:** VHA should undertake a study to consider which locations may be optimal for the newer regionalized call centers (for example, new call centers in low cost-of-living areas, additions to existing VA call centers such as Waco, Dayton), with the overall goal of improving knowledge/talent sharing and decreasing costs.

Appendix A Choice Act Legislation

Figure A-1. Choice Act Language for Assessment E

E) The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.

(2) PARTICULAR ELEMENTS OF CERTAIN ASSESSMENTS.—

- SCHEDULING ASSESSMENT.—In carrying out the assessment required by paragraph (1)(E), the private sector entity or entities shall do the following:
  - Review all training materials pertaining to scheduling of appointments at each medical facility of the Department.
  - Assess whether all employees of the Department conducting tasks related to scheduling are properly trained for conducting such tasks.
  - Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.
  - Assess whether health care providers of the Department are making changes to their schedules that hinder the ability of employees conducting such tasks to perform such tasks.
  - Assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments.
  - Assess whether booking templates for each medical facility or clinic of the Department would improve the process of scheduling such appointments.
  - Assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solutions.
  - Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:
    - Changes in training materials provided to employees of the Department with respect to conducting tasks related to scheduling such appointments.
    - Changes in monitoring and assessment conducted by the Department of wait times of Veterans for such appointments.
    - Changes in the system used to schedule such appointments, including changes to improve how the Department—
      - Measures wait times of Veterans for such appointments;
      - Monitors the availability of health care providers of the Department; and
      - Provides Veterans the ability to schedule such appointments.
      - Such other actions as the private sector entity or entities considers appropriate.

Table A-1. Legislation Language Mapping

Choice Act language	Corresponding report section	Finding/recommendation
E) The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.	Section 5 - Provider availability; Section 6 - Scheduling Process	All finding and recommendations in these sections
(2) PARTICULAR ELEMENTS OF CERTAIN ASSESSMENTS — ▪ SCHEDULING ASSESSMENT—In carrying out the assessment required by paragraph (1)(E), the private sector entity or entities shall do the following:		
○ Review all training materials pertaining to scheduling of appointments at each medical facility of the Department.	Section 8 - Scheduler Training	Findings: 8.2.1; 8.2.3 Recommendations: 8.3.2; 8.3.3
○ Assess whether all employees of the Department conducting tasks related to scheduling are properly trained for conducting such tasks.	Section 8 - Scheduler Training	Findings: 8.2.1 Recommendations: 8.3.1
○ Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.	Section 8 - Scheduler Training	Findings: 8.2.2 Recommendations: 8.3.1
○ Assess whether health care providers of the Department are making changes to their schedules that hinder the ability of employees conducting such tasks to perform such tasks.	Section 5 - Provider Availability	Findings: 5.2.4; 5.2.5; 5.2.6 Recommendations: 5.3.4

Choice Act language	Corresponding report section	Finding/recommendation
o Assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments.	Section 9 - Scheduling Call Centers	All finding and recommendations in the section
o Assess whether booking templates for each medical facility or clinic of the Department would improve the process of scheduling such appointments.	Section 5 - Provider Availability	Findings: 5.2.2, 5.2.3 Recommendations: 5.3.4
o Assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solutions.	Section 7 - Scheduling System	Findings: 7.2.1; 7.2.2; 7.2.3; 7.2.4; 7.2.5 Recommendations: 7.3.1; 7.3.2 ; 7.3.3
o Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:		
– Changes in training materials provided to employees of the Department with respect to conducting tasks related to scheduling such appointments.	Section 8 - Scheduler Training	Findings: 8.2.1 Recommendations: 8.3.1, 8.3.2
– Changes in monitoring and assessment conducted by the Department of wait times of	Section 6 - Scheduling Process	Findings: 6.2.6 Recommendation: 6.3.1

Choice Act language	Corresponding report section	Finding/recommendation
Veterans for such appointments.		
– Changes in the system used to schedule such appointments, including changes to improve how the Department— – Measures wait times of Veterans for such appointments;	Section 7 - Scheduling System	Findings: 7.2.1 Recommendations: 7.3.3
– Monitors the availability of health care providers of the Department; and	Section 5 - Provider Availability; Section 7 - Scheduling System	Findings: 5.2.1 Recommendation: 5.3.2; 5.3.5; 7.3.3
– Provides Veterans the ability to schedule such appointments. – Such other actions as the private sector entity or entities considers appropriate.	Section 7 - Scheduling System	Findings: 7.2.3 Recommendation: 7.3.3

Appendix B Methodology

B.1 Description of Data/Information Sources

Sources from VHA:

- **Policy review:** This included Central Office-driven policies related to scheduling for outpatient clinic appointments, scheduling for surgery/procedures/radiology, telephone care, and the Patient Aligned Care Team (primary care) model.
- **Central office, VISN and facility interviews:** This included interviews with over 40 individuals with cross-cutting responsibilities including subject matter experts and leaders in the Access & Clinic Administration Program (ACAP) office, including the Telephony Directive team, Clinical Operations, Connected Health, OI&T, and the VA office of Veteran Experience. A wide range of topics were covered including scheduling policies, clinical operations (surgery, primary care, mental health), scheduler training, information & analytics, telephony and provider productivity.
- **Clinic Access Index available through the Veterans Support Service Center (VSSC), Corporate Data Warehouse (CDW) schedules:** This included a scorecard of access performance, called the Clinic Access Index, which provides metrics such as “missed opportunities” rates (no shows and late cancellations), appointment reschedules and appointment lengths. Data on pending appointments was also available through this system.
- **Frontline staff survey:** A survey with specific training-focused questions for “schedulers,” individuals who indicated that they schedule appointments for outpatient care (N=825), including both frontline MSAs (N=726) and non-MSAs with scheduling privileges (N=99); as well as MSA supervisors (N=70), clinic administrators (N=80), providers (N=1,054), administrative officers (N=86), and clinical leaders (N=121). The survey was intended to reach all facilities and respondents represented 137 VAMCs and 320 CBOCs overall.
- **Facility-level information collected via a centralized “data call”:** A data call distributed through all 21 VISNs to 152 VAMCs requesting three types of information. A total of 102 VAMCs responded to at least some part of the data call. This included a survey regarding the creation, maintenance, and delivery of trainings (N=49 VAMCs); a survey of facilities’ scheduler reporting structures and scheduler audit performance (N=73 VAMCs); and a collection of national and local training materials for MSAs on new policies (N=51 VAMCs). The materials collected were analyzed for the period in which they were delivered, the topics they covered, and the format of delivery used to discover best practices currently taking place within VAMCs.

Data and information from broader government and external sources were also gathered to understand previous reports on VHA wait times and inform comparison to best practice outside of VHA. This work included:

- **Literature review of past findings and recommendations:** This included thirty-seven past reports on VHA related to scheduling since 1999. The appendix relating to each section of this report includes a grid describing the recommendations from past reports that informed our findings.

- **Interviews and select site visits with four leading hospital systems:** This included interviews with representatives from four leading hospital systems, including two integrated networks, on their scheduling and access management practices to understand approaches that they had found to be successful.
- **Interviews with hospital executives with experience procuring or implementing an IT scheduling system:** The team interviewed 10 executives at private hospital systems to better understand how the current and proposed VA scheduling system compared with those used in the private sector.
- **Interviews with health systems administrators with experience in frontline scheduler training:** The team interviewed 10 private sector health system administrators to better understand how content, method, and cadence of training is performed for both new and existing schedulers.
- **Review of McKinsey research on and public sector experience with IT implementations:** The team reviewed research that McKinsey has developed drawing on findings from 5,000 IT implementations along with the Firm's direct experience with twenty U.S. public sector IT implementations since 2010.
- **Review of private sector scheduling practices:** Industry standard and best practices were catalogued through review of academic literature and published case studies. These best practices are detailed in the relevant section in this report and are referenced in the bibliography.

B.2 Description of Site Visits to VA Medical Centers (VAMCs) and Community-based Outpatient Clinics (CBOCs)

B.2.1 Site Selection Approach for VAMCs

To increase consistency and generalizability of findings, a subset of assessment teams has coordinated sampling methods to the extent possible to select a core set of VAMCs to visit that are representative of the VAMC system as a whole across critical facility demographic and performance outcome metrics.

The VAMC site selection process followed the following steps:

1. **Stratification of facilities:** Stratified random sampling, with VISN as a strata, was used to select an initial list of facilities. To reduce sample size, a subset of VISNs was randomly selected, from which one of the two initially selected sites was randomly de-selected.
2. **Review of distribution:** Chi-square testing was used on each of the key facility profile and performance variables to ensure the distribution of scores in the sample was representative of the population. Variables were chosen to reflect anticipated drivers of facility performance, and included: VISN, rurality, adjusted admissions, complexity level

(on VHA rating scale), adjusted length of stay, adjusted patient satisfaction, cumulative access score, and facility age.

3. **Refinement of facility selection:** Initial facility list was vetted with internal and external SMEs and augmented as needed, to include facilities that are considered critical for inclusion (e.g., a Polytrauma Center, facilities with innovative tools/practice) and to ensure that all selected facilities offered the range of services being assessed.

This method resulted in a sample of 23 facilities that in combination were representative across each of the criteria used in selection. Assessment E also visited two additional VAMCs not randomly selected, Indianapolis and Phoenix. Indianapolis was chosen because it is the only VHA facility in the country that uses a software system other than VistA to schedule outpatient appointments and the team wanted to understand the scheduling challenges in Indianapolis and compare them to those of other facilities. Further, the team wanted to learn about the software implementation process of a new scheduling system. Phoenix was visited due to its attention in previous reports.[78]

Results for Fisher's exact Chi-square test[79] demonstrate that the sample is not significantly different from the population of VAMCs:

Table B-1. Chi-square Testing Results for VAMC Representativeness

Numerical Complexity Level Variable (p-value for Fisher's Exact Test: 0.80)					
	Population	% pop	Selected	% Selected	Difference
-1	2	1%	0	0%	-1%
1	88	59%	16	70%	11%
2	32	21%	4	17%	-4%
3	28	19%	3	13%	-6%
Total	150	100%	23	100%	

Rurality Numerical Variable (p-value for Fisher's Exact Test: 1.0)					
	Population	% pop	Selected	% Selected	Difference
0	28	19%	4	17%	-1%
1	122	81%	19	83%	1%
Total	150	100%	23	100%	

---

[78] Review of Patient Wait Times, Scheduling Practices, and Alleged Patient Deaths at the Phoenix Health Care System, 2014

[79] Fisher's exact test is a type of Chi-square test specifically for smaller sample sizes. For VAMCs, we used Fisher's exact test to be more accurate than a standard Chi-square. Figure B-5, we used a standard Chi-square test, as the sample size was large enough

Adjusted Admissions Quartile (p-value for Fisher's Exact Test: 0.74)

	Population	% pop	Selected	% Selected	Difference
-1	22	15%	2	9%	-6%
1	32	21%	5	22%	0%
2	64	43%	9	39%	-4%
3	32	21%	7	30%	9%
Total	150	100%	23	100%	

Adjusted LOS Quartile (p-value for Fisher's Exact Test: 0.68)

	Population	% pop	Selected	% Selected	Difference
-1	39	26%	4	17%	-9%
1	28	19%	3	13%	-6%
2	55	37%	11	48%	11%
3	28	19%	5	22%	3%
Total	150	100%	23	100%	

Adjusted Patient Satisfaction Quartile (p-value for Fisher's Exact Test: 0.83)

	Population	% pop	Selected	% Selected	Difference
-1	39	26%	4	17%	-9%
1	28	19%	5	22%	3%
2	55	37%	9	39%	2%
3	28	19%	5	22%	3%
Total	150	100%	23	100%	

Cumulative Access Score Quartile (p-value for Fisher's Exact Test: 0.78)

	Population	% pop	Selected	% Selected	Difference
-1	32	21%	3	13%	-8%
1	33	22%	7	30%	8%
2	27	18%	4	17%	-1%
3	33	22%	4	17%	-5%
4	25	17%	5	22%	5%
Total	150	100%	23	100%	

Operational Data Quartile (p-value for Fisher's Exact Test: 0.87)					
	Population	% pop	Selected	% Selected	Difference
1	38	25%	5	22%	-4%
2	74	49%	11	48%	-2%
3	38	25%	7	30%	5%
Total	150	100%	23	100%	

B.2.2 Site Selection Approach for CBOCs

Due to the focus on outpatient care, for every visit to a randomly selected VAMC, Assessment E also visited a nearby CBOC. These facilities were prioritized by geographic proximity due to budgeting constraints and checked for representativeness of VHA facilities nationally using chi-square testing by comparing them to the general CBOC population across the following variables: size in terms of number of monthly outpatient appointments completed, wait time performance in primary care, specialty care, and mental health, and types of services offered (e.g., primary care, mental health, specialty care).

CBOC chi-square testing results

Chi-square testing demonstrates the sample is not significantly different from the population of CBOCs:

Table B-2. Chi-square Testing Results for CBOC Representatives

Monthly appointment volume (p-value for chi-square test: 0.67)					
	Population	% pop	Selected	% Selected	Difference
-1	20	3%	0	0%	-3%
1	149	19%	4	17%	-2%
2	435	55%	12	50%	-5%
3	192	24%	8	33%	9%
Total	796	100%	24	100%	
Wait time performance (p-value for chi-square test: 0.84)					
	Population	% pop	Selected	% Selected	Difference
-1	20	3%	0	0%	-3%
0	4	1%	0	0%	-1%
1	276	35%	8	33%	-1%
2	360	45%	13	54%	9%

3	136	17%	3	13%	-5%
Total	796	100%	24	100%	
Types of services offered (p-value for chi-square test: 0.73)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
0	470	59%	15	63%	3%
1	326	41%	9	38%	-3%
Total	796	100%	24	100%	

B.2.3 Methodology for Site Visits

The team used site visits to develop a more nuanced understanding of the current state of scheduling across VHA facilities. Each visit covered all assessment topics (scheduling process, scheduler training & reporting, scheduling operating structure, scheduling system and provider availability). On-site assessments included interactions with both clinical and administrative leadership across multiple levels of the organization, involving:

- **Individual/small group interviews:** The team conducted interviews in order to understand which policies and processes were in place at each site across multiple clinics
- **Group interviews with schedulers and clinic administrators/administrative officers:** The team conducted two large group interviews at each VAMC where each group was asked to discuss the largest challenges in scheduling patients today as well as recommendations to improve the process.
- **Observations:** The team shadowed frontline schedulers and call center staff to observe and understand the processes they use each day.

The following exhibit describes the range of roles touched on each site visit, the number of VAMCs, CBOCs and call centers (which varied in location between the VAMC and CBOC) and the number of interviews conducted over the course of the assessment. The following exhibit describes a sample visit schedule:

Table B-3. Typical Site Visit Schedule – Day 1

Time Frame (min)	Session Type	Facility	Objective	Target Audience
15	Kick-off	VAMC	Background of the Choice Act Legislature, Overview of the Assessment Teams, Discuss Site Visit Principles	Facility Leaders and Staff, Site Visit Team

Time Frame (min)	Session Type	Facility	Objective	Target Audience
60	Interview	VAMC	Get overview of how scheduling works across the site	Director/Deputy Director of HAS/C BO/MAS (most senior person/people responsible for clinic administration & scheduling (role varies)), including patient access champion (if applicable) with a maximum of 3 people
30	Interview	VAMC	Discuss patient scheduling processes, systems, and policies	2 Department Manager/Supervisors together (to compare/contrast)
30	Interview	VAMC	Discuss patient scheduling processes, systems, and policies	1 Procedure Suite Manager & 1 Operating Room manager together
30	Observation	VAMC	Appointment scheduling process	1 scheduler in Medical or Surgical Specialty Care Clinical Area A & B
30	Local material review with Scheduling Training Coordinator or Scheduling Supervisor/ manager	VAMC	Review policy, training, procedures local to the facility	Administrative Leader of scheduling
30	Policy interview	VAMC	Review provider policies in place	Senior clinical Leader (chief of staff)
30	Lunch			
60	Scheduler assessment workshop	VAMC	Understand barriers/pain points in process	Assessment workshop of ~10 schedulers/people with >50 percent of role on scheduling representing various specialties

Time Frame (min)	Session Type	Facility	Objective	Target Audience
60	Clinic admin assessment workshop	VAMC	Understand barriers/pain points in process	Assessment workshop of ~10 admin leads (distinct from above; different individuals from interview required)
30	Interview	VAMC	Varies	Non-VA care lead (person responsible for coordinating with non-VA facilities if a patient can't get in quickly enough)
60	Clinic/service observation	VAMC	In clinic interviews	Medical specialty or Mental Health; 30 min interview with 1 AO/clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)

Table B-4. Typical Site Visit Schedule – Day 2

Time Frame (min)	Session Type	Facility	Objective	Target Audience
75	Clinic/service observation	VAMC	In clinic interviews	Surgical specialty; 45 min interview with 1 AO/ clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)
30	If call center: Kick-off and tour	Call center (where relevant)	Understand structure of scheduling/call center	Management lead interview and walkthrough
60	If call center: Service observation and discussion	Call center (where relevant)	Observation & small group discussion	30 min with 1 "scheduler" direct observation; 30 min with 2-3 schedulers small group discussion

Time Frame (min)	Session Type	Facility	Objective	Target Audience
75	Clinic/service observation	VAMC	In clinic interviews	Primary care clinic; 45 min interview with 1 AO/ clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)
30	Observation	VAMC	Appointment scheduling process	1 scheduler in Primary Care (if no call center)
30	*Lunch*			
30	Presentation/interview	CBOC	Understand barriers/pain points in process	Site admin lead interview
75	Clinic/service observation	CBOC	In clinic interviews	Primary care Clinic ; 45 min interview with 1 AO/ clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)
75	Clinic/service observation	CBOC	In clinic interviews	Specialty Clinic; 45 min interview with 1 AO/ clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)

The following table describes the roles touched:

Table B-5. Roles Interviewed at Site Visits

Site	Audience	Interviewee	Number of individuals interviewed
VAMC	**Leadership**	Admin leadership in charge of MSAs	49
		Admin leader in charge of policy/training	51
		Chief of Staff	17
		AO or clinic admin of Primary Care	18

Site	Audience	Interviewee	Number of individuals interviewed
	A.O. or Clinic Administrator	AO or clinic admin of Medical Specialty[80]	24
		AO or clinic admin of Surgical Specialty[81]	14
		Group interview of 8-12 clinical administrators and A.O.s	174
	Scheduler	Group interview of 8-12 schedulers	187
		Scheduler observation	31
	Provider	Provider Primary Care	22
		Provider Medical Specialty/Mental Health	35
		Provider Surgical Specialty	15
	Other "deep dive" areas	OR and Procedures	11
		Lab and Radiology	13
		Non-VA Care office administrator	48
CBOC	**Provider**	Primary Care provider	21
		Specialty provider[82]	11
	Management	AO/nurse manager	26
		Admin Leader	22
Call centers	**Management**	Call center administrators	48

---

[80] Cardiology, dermatology, mental health, optometry, neurology

[81] Ortho, urology, podiatry, ophthalmology

[82] Specialties at CBOCs were limited; specialties included mental health, women's health, dermatology, ophthalmology

Appendix C Provider Availability

C.1 Best Practices for Provider Availability

Table C-1. Scheduling Process – Best Practices and Benchmarks

Component	Best practice/benchmark
Supply and demand	▪ Use supply and demand to forecast optimal scheduling supply (Gupta and Denton, 2007)
	▪ Use sophisticated modeling to understand patient needs across a population[83] (Brandenberg et al., 2015; Gabow and Goodman, 2015)
	▪ Use real-time dashboard to guide process improvement[84] (Brandenberg et al., 2015)
	▪ Use level loading to reduce unnecessary supply-demand variation[85] (Brandenberg et al., 2015)
	▪ Smooth the work flow by scheduling routine care in low demand times (Nolan et al., 1996)
	▪ Flex staffing to account for demand variability (e.g., flu season, allergy season)[86] (Brandenberg et al., 2015)
	▪ Use historical emergent or urgent visits to estimate appropriate number of same-day slots[87] (Nolan et al., 1996)
	▪ Track data on demand by day, week, month, and patient type (Brandenberg et al., 2015)
	▪ Monitor demand on a daily, weekly, and seasonal basis (“Measure,” n.d.; “Balance,” n.d.)
	▪ Set provider schedules to match expected clinical FTE (“Measure,” n.d.)

---

[83] Study foundh that 2-3 percent of patients constituted 30 percent of costs, suggested access may need to be prioritized for these patients

[84] Seattle Children's reduced wait times and patient flow-through from ED to inpatient bed using visual dashboard

[85] Seattle Children's used real-time communications to improve efficiency. As an example, the hospital successfully flexed provider supply to create evening appointments based on historical demand data.

[86] Kaiser uses historical demand data to flex appointment supply

[87] This strategy employed successfully by eight health systems.

Component	Best practice/benchmark
	▪ Use supply-demand analytics and prediction tools to reduce wait times (“Measure”, n.d.)
	▪ Make appointment slots match expected appointment length for each sub-specialty (“Reduce,” n.d.)
	▪ Eliminate non-essential rules to increase the ease and consistency with which schedulers can book appointments (“Reduce,” n.d.)
	▪ Incorporate patient preferences into demand forecasting to ensure adequate appointment supply by type (Gupta and Denton, 2007)
	▪ Manage demand to reduce delays[88] (Nolan et al., 1996)
Profile/schedule creation	▪ Slots are reserved for certain types of patients each day, depending on medical urgency, type of service requested, and whether the patient is known to the provider (Gupta and Denton, 2007)
	▪ Establish a visits-per-day target as the starting point for designing a schedule (“Management,” 2010)
	▪ Incorporate patient preferences (e.g., same-day, future appointment) into demand modeling to improve appointment mix (Gupta and Denton, 2007)
	▪ Use historical demand to predict optimal appointment mix type (Gupta and Denton, 2007; Nolan et al., 1996[89])
	▪ Measure historical appointment length to adjust slot length to closely match; this practice reduces down time and need for overbooking (“Management,” 2010)
	▪ Use of a schedule that matches closely to actual practice (e.g., appointment length is equal to slot length) results in improved provider and patient satisfaction (Heaney et al., 1991)
Performance Management	▪ Use productivity as one of several measures rather than alone in performance management (Nolan et al., 1996)

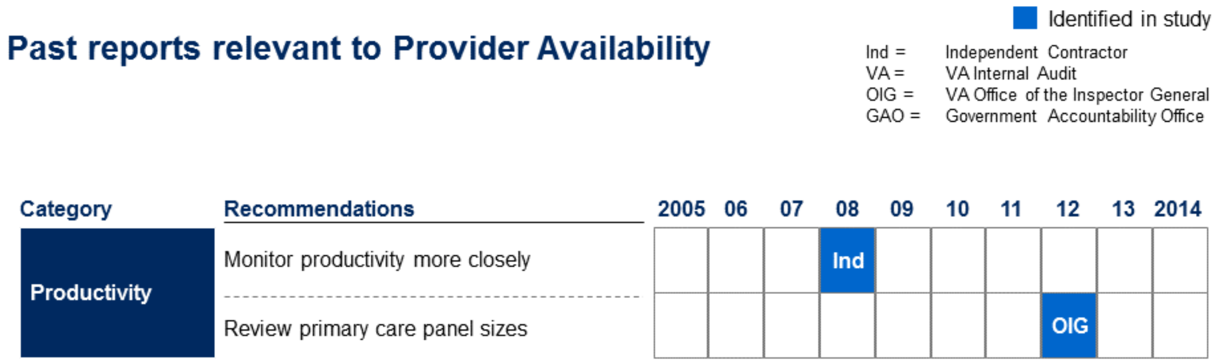
---

[88] Can be accomplished through multiple ways, including disabling automatic scheduling of follow-up appointments and alternative treatment models (e.g., group care, secure messaging).

[89] By setting aside 30-70 percent of appointments as same-day appointments based on predicted demand, canceled appointments fell and patient satisfaction/provider productivity increased.

C.2 Past Reports on Provider Availability

Figure C-1. Previous Reports Relevant to Provider Availability



Past reports relevant to Provider Availability

🟦 Identified in study

Ind = Independent Contractor
VA = VA Internal Audit
OIG = VA Office of the Inspector General
GAO = Government Accountability Office

Category	Recommendations	2005	06	07	08	09	10	11	12	13	2014
Productivity	Monitor productivity more closely				Ind						
	Review primary care panel sizes								OIG		

This page intentionally left blank.

Appendix D Scheduling Process

D.1 Additional Detail on Scheduling Process

Appointment scheduling at VHA facilities involves a number of different interrelated processes, wait lists, and rule sets depending on whether the patient is “new” or “established” and the type of care needed. The processes and rules below are detailed in the national scheduling directive. In addition, supplementary scheduling rules may exist at the local level as well.

Managing scheduling for patients who are established with VHA and the clinical service from which they are seeking care

Established patients are defined as those who have received care from a particular specialty within the last 24 months. These patients are able to schedule a follow-up visit as long as their providers have submitted a return to clinic (RTC) order into the system, along with a clinically indicated date for this visit to happen. The process for scheduling a follow-up visit depends on whether the patient requires care within 90 days or greater than 90 days.

RTC date less than 90 days: Patients who have a RTC order for care within 90 days of the current date are able per national policy to immediately schedule a return visit for any time after the stated RTC date. If the patient is not able to be seen in a timely manner or if a particular type of service (such as a specialized procedure) is not available through this facility, he or she may be eligible to see a non-VA provider.

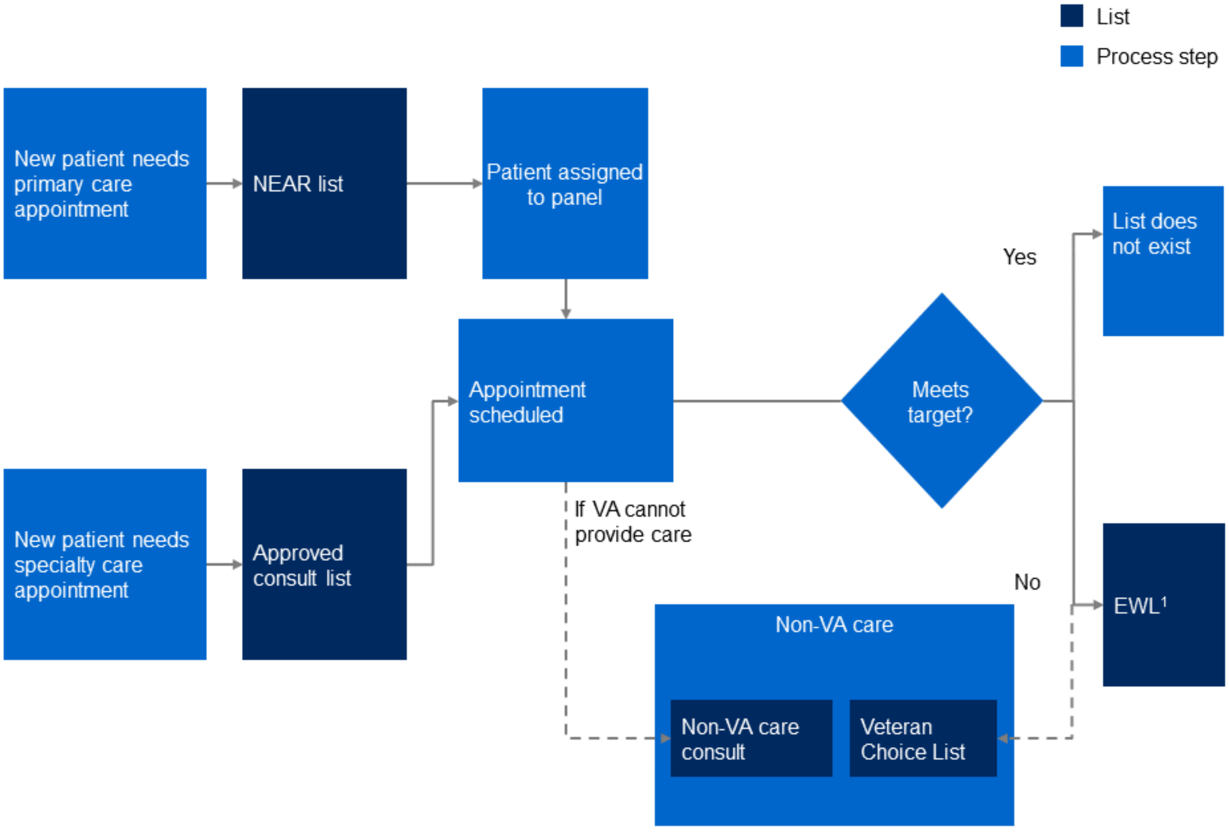
RTC date >90 days: If the patient’s RTC date is more than 90 days away, he or she is not immediately scheduled and placed on the recall list (see Glossary of patient lists) for scheduling at a future date. This patient is then contacted by the provider’s office two to three weeks before the RTC date via mail to schedule an appointment.[90]

See Figure D-1 for a simplified visual depiction of the established patient scheduling process.

---

[90] While use of the recall list for patients with RTC dates >90 days is national policy, some departments have been given permission not to use the recall list and instead book appointments.

Figure D-1. Established Patient Appointment Booking Process


List
Process step
New patient needs primary care appointment
NEAR list
Patient assigned to panel
Appointment scheduled
Meets target?
Yes
List does not exist
No
EWL¹
If VA cannot provide care
New patient needs specialty care appointment
Approved consult list
Non-VA care
Non-VA care consult
Veteran Choice List

1 Serves as a form of electronic documentation of patient waiting to be scheduled

Managing waitlists of new patients (new to a clinical service) waiting for care and their appointment booking

New patients are defined as Veterans who have not received care from a particular specialty within the last 24 months. These patients could either have recently become eligible for VA care, be new to the region, require a new type of care (like cardiology), or need to be seen by a specialty for the first time in more than 24 months.

New to Primary Care: Patients who are new to Primary Care must first be deemed eligible at the national Health Eligibility Center. Once deemed eligible, patients are added to the New Enrollee Appointment Request list, from which they are assigned to a specific Patient Aligned Care Team (PACT).[91] Once a Veteran is assigned to a particular team, schedulers from the primary care clinics contact the patient to schedule an initial visit. If the visit is scheduled outside of 90 days due to a lack of available appointment slots, the patient is added to the Electronic Wait List (EWL, see Table D-1, “Glossary of Patient Wait Lists”). If there is no provider available within the VA system who can see the patient in a timely manner or within reasonable distance, then the patient may be authorized to receive care from a non-VA provider through a Non-VA care consult (NVCC) or the Choice card program.

---

[91] PACTs refer to team-based primary care model, which is a VHA-customized version of the patient-centered medical home model of care

New to Specialty Care: Patients who require specialized care that cannot be provided by a primary care provider (PCP) are referred to a specialty care provider by the PCP. The PCP must submit a consult request to the desired specialty, and, if approved by the specialty, the patient will be eligible to schedule an appointment. Similar to new patients requiring primary care, those patients scheduled for an appointment outside the 90 day target are added to the EWL. If the specialty care required is not offered at the patient's local VHA facility or if care is not available within a timely manner, then the patient may be eligible to visit another VHA facility within the region or see a provider outside the VHA system.

The use and maintenance of a series of lists is mandated by national policy to monitor patients requiring care and track potential backlogs in the system.[92] These lists vary in terms of patient population, type of care required, and purpose. It is national policy that all lists must be kept within VistA, as these lists provide the data monitored at facility, regional, and national levels to ensure adequate access to care. See Table D-1 – Glossary of patient lists.

Table D-1. Glossary of Patient Wait Lists

List name	Patient population	Type of care	Purpose
New Enrollee Appointment Request (NEAR)	**New to service**	▪ Primary care	▪ NEAR list is used to document all newly eligible patients who do not yet have PCPs, assign these patients to primary care providers, and monitor potential primary care backlogs
Electronic Waiting List (EWL)	**New to service**	▪ Primary care ▪ Specialty care ▪ Mental health	▪ EWL keeps track of all new patients with scheduled appointments that are >90 days outside the patient's desired appointment date ▪ If an appointment becomes available sooner (e.g., due to cancellation), a patient on the EWL will be given the option to take the earlier appointment

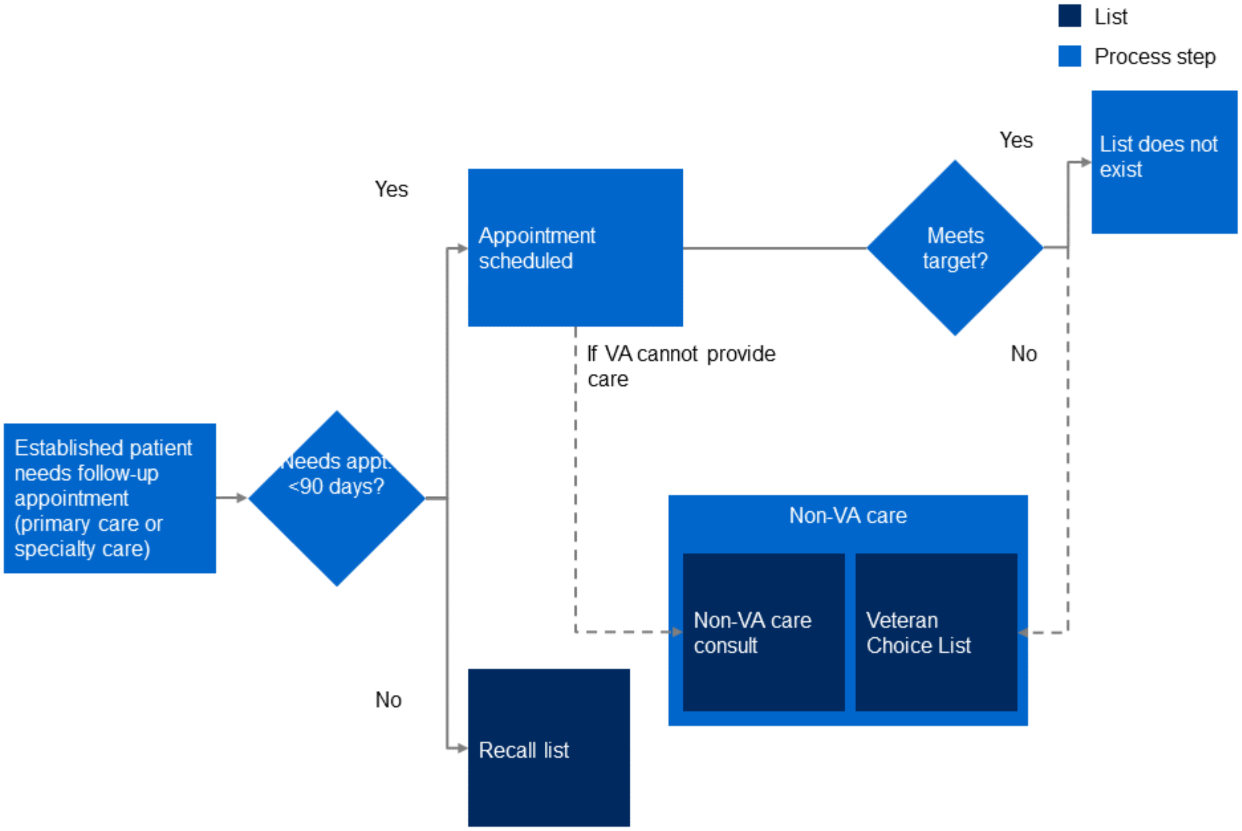
---

[92] The use of lists, both official and unofficial, has come under significant scrutiny since it was discovered in spring 2014 that the Phoenix VAMC was using "secret," or unofficial, waitlists, in part to mask delays in patient care. According to VHA national policy, all lists outlined below must be kept electronically and through the official VHA IT package to ensure proper monitoring practices and accurate data tracking. Any unofficial lists are expressly forbidden.

List name	Patient population	Type of care	Purpose
Consult	**New to service**	- Specialty care	- Consult list is made up of all patients who have been approved by the specialty service (e.g., cardiology) to be seen but have not yet been scheduled
Non-VA Care (NVCC) list, Veteran choice List (VCL)	**New to service, follow-up**	- Primary care - Specialty care - Mental health	- NVCC list is composed of established patients who are deemed to need care not available at VHA (e.g., service not offered) by referring service (usually specialty care) - VCL was recently created by the Choice Act and is made up of new and established patients who are located >40 miles from a VHA facility or cannot be seen within 30 days by a VHA provider

See Figure D-2 for a simplified visual depiction of the new patient scheduling process.

Figure D-2. New Patient Appointment Booking Process


List
Process step
Established patient needs follow-up appointment (primary care or specialty care)
Needs appt. <90 days?
Yes
No
Appointment scheduled
Recall list
If VA cannot provide care
Meets target?
Yes
No
List does not exist
Non-VA care
Non-VA care consult
Veteran Choice List

Wait times measurement & monitoring

While VHA looks at a number of supplemental access metrics, wait times at VHA are generally calculated one of two ways: 1) if the patient is new to the clinic, then the wait time is calculated as the difference in days between the creation date of the appointment in the VistA system and the day of the appointment; or 2) if the patient is established, policy states that the wait time is equal to the difference in days between the patient's "desired date" for the appointment and the date of the actual appointment. Policy states that the desired date should be determined by asking the patient when he or she would like to be seen without regard to availability of appointments. The scheduler is responsible for inquiring about and entering the patient's desired date into the system.

While the desired date form of measurement may seem straightforward, it has come under significant scrutiny due to its ability to be manipulated to decrease reported established patient wait times, as has been reported multiple times in the previous decade.[95-99] By altering the desired date to a date the patient agrees based on appointment availability, the scheduler can artificially bring the wait for appointment times down to 0 days, even if patients may have to wait months to see their providers. Even if the scheduler is not intending to alter desired date to manipulate wait times, there still remains a subjective component to the process that may lead to variability among schedulers.

A component of the updated scheduling policy currently under VACO review is the replacement of the desired date with the "preferred date." The preferred date is defined much more narrowly for all patients to remove any subjectivity in the entering of the reference date. For example, under the proposed changes, the provider's return to clinic (RTC) date will become the desired date, regardless of patient input, with the goal of removing scheduler subjectivity from the wait time measurement process.

Patient appointment adherence management

Once patient appointments are scheduled, it is important that patients keep their appointments by arriving at the clinic on time and with all necessary pre-work (e.g., labs, imaging) so the visit can be effective. VHA facilities employ a number of different tools to manage this including live and robo reminder calls from the clinic and appointment reminder letters. As part of its patient-oriented IT development, VHA is also considering other features for reminders (e.g., text).

Another method that VHA is using to reduce no-show rates is the recall system, which was created in response to VHA patient data showing patients are more likely to no-show the further an appointment is booked into the future.[98] According to national scheduling policy, patients requiring follow-up appointments beyond 90 days into the future are not allowed booking those appointments and instead should be entered into the recall system. The recall system is a component of the VistA Scheduling package that tracks patients requiring future appointments and automatically reminds patients by letter 2-3 weeks ahead of their would-be appointment date to book their appointments. If patients do not respond to this letter, then the clinic must call the patient to schedule the appointment. The goal of this process is to reduce the time between booking date and visit date.

---

[93] Audit of Alleged Manipulation of Waiting Times in Veterans Integrated Service Network 3

[94] Audit of the Veterans Health Administration's Outpatient Waiting Times

[95] Audit of the Veterans Health Administration's Outpatient Scheduling Procedures

[96] Reliability of Reported Outpatient Medical Appointment Wait Times and Scheduling Oversight Need Improvement

[97] Delays for Outpatient Specialty Procedures: VA North Texas Health Care System Dallas, Texas

[98] Access and Clinic Administration Program, interviews, 2015

Managing additional scheduling situations

Surgery and procedures: Procedures are scheduled in an analogous way to the outpatient visit appointment scheduling process above. A separate national policy exists for surgical/OR services, and relies on a different scheduling package than the one used for clinic visits and procedures.

Clinical laboratory testing and radiological imaging: The scheduling of laboratory testing (e.g., bloodwork) or imaging (e.g., x-ray, MRI) is slightly different from the visit scheduling process. Patients are not scheduled for clinical labs. Radiology scheduling can differ depending on the type of study. For instance, x-rays are usually performed on a walk-in basis, whereas other equipment (e.g., MRI, CT) typically utilizes open access scheduling,[99] in which schedulers are able to schedule patients into the appropriate modality ("Open Access Scheduling," n.d.).

Role of the front-line scheduler in the scheduling process

While scheduling may be performed by a range of roles at VHA, medical support assistants (MSAs), or "schedulers," typically perform the scheduling process. The clerks responsible for scheduling can either be located physically in the clinics for which they schedule or, alternatively, sometimes may sit in call centers located either within the facility or elsewhere. These clerks are required to have a high school education and generally one year of work experience, although no previous experience working in a clinical setting is required for certain scheduling-related roles.[100,101]

MSA duties may include, but are not limited to patient appointment scheduling, scheduling patients off of wait lists, front-desk duties (e.g., answering phone calls, checking in patients) and other clerical duties as requested by the clinic (e.g., obtaining patient records, making photocopies).

D.2 Best Practices for Scheduling Process

Table D-2. Scheduling Process – Best Practices and Benchmarks

Component	Best practice/benchmark
Overall	▪ Leverage a provider champion to drive change (Nolan et al., 1996)

---

[99] https://cahps.ahrq.gov/quality-improvement/improvement-guide/browse-interventions/Access/Open-Access.html

[100] Access and Clinic Administration Program, interviews, 2015

[101] Work and education requirements vary by grade level

Component	Best practice/benchmark
	▪ Focus on patient wait times to improve patient satisfaction[102] (Brandenberg et al., 2015; HCAHPS, 2015)
	▪ Utilize same-day or open access scheduling to avoid trying to estimate patient acuity[103] (Brandenberg et al., 2015; Murray, 2003; IHI, 2015)
	▪ Overbook to the no show rate to improve utilization of available provider time (Kumar et al., 2014; Gupta and Denton, 2007)
	▪ Use team "huddles," including clinic providers, staff and administrators, at the beginning of each day ("Use Regular Huddles," n.d.)
Scheduler duties	▪ Improve slot availability to reduce time in negotiating appointments with patients (Murray, 2003)
Patient appointment adherence	▪ Consider no-shows and late cancellations (<24 hours) similarly in terms of ability to fill the previously scheduled slot (Moore et al., 2001)
	▪ Use mobile text messaging to reduce no show rates[104] (Koshy et al., 2008)
	▪ Reduce no-show rates by requiring patient to commit verbally to cancelling appointment if he/she plans on not keeping the appointment[105] ("How to Reduce," 2001)
	▪ Measure differences in no-show and walk-in rates by time of day[106] (Moore et al., 2001)

---

[102] Patient satisfaction increased from 10th and 20th percentiles to 50th due to improved patient access for Kaiser

[103] Same-day or open access requires accurate demand and supply measurement, elimination of appointment types, and eradication of backlog to be successful

[104] Use of mobile-phone short message service (SMS) reminders was associated with a 38% reduction in appointment non-attendance in study of over 9,000 patients

[105] This study showed a decrease from 30 percent to 10 percent no-show rate in restaurant reservations after framing the reminder to cancel from a statement to a question

[106] This study in a family practice clinic showed higher no-show rates in the morning and higher walk-in rates in the afternoon, resulting in greater waste of provider time in morning sessions

Component	Best practice/benchmark
	▪ Improve no-show rate with more timely access[107] (Brandenberg et al., 2015; Kehle et al., 2011; Pizer and Prentice, 2011)
	▪ Use same-day appointments to lower no-show rates[108] (Brandenberg et al., 2015)
	▪ Provide patient education about impact of no-show to reduce no-show rate ("Management," 2010)

Table D-3. Wait Times – Best Practices and Benchmarks

Component	Best practice/benchmark
Access Target	▪ Track third next available appointment as key access metric[109] (IOM 2015; IHI 2015)
	▪ Calculate third next available either automatically in system or manually, if needed[110] (IHI, 2015)
	▪ Establish goal for third next available to zero days for primary care and two days for specialty care (Brandenberg et al., 2015; IHI 2015)
	▪ Set patient expectations appropriately to achieve better patient satisfaction (Brandenberg et al., 2015; Cosgrove et al., 2013)

---

[107] 8-12 percent no-show rate achieved largely through improved access; no-show rate expected to improve further with self-scheduling and increased same-day scheduling

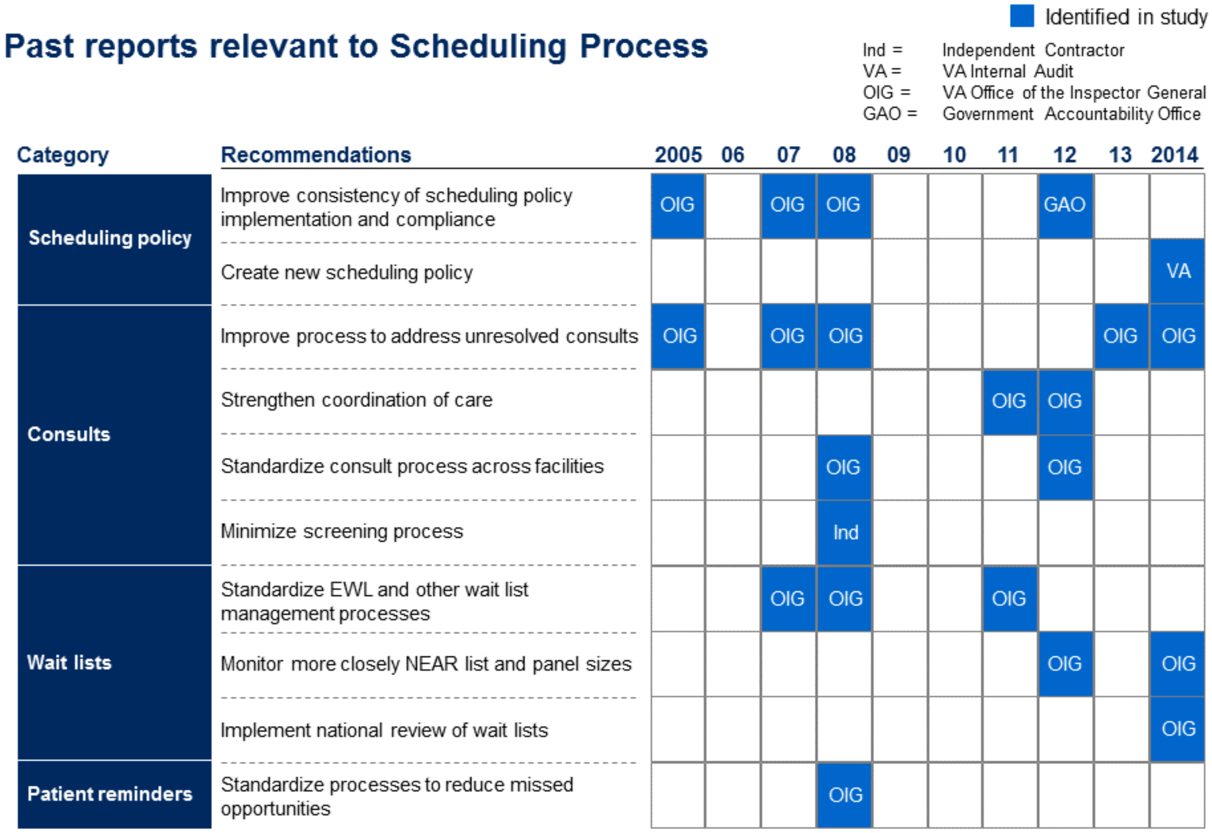
[108] Denver Health successfully lowered no-show rates by providing same-day access

[109] The IHI defines third next available appointment as the "average length of time in days between the day a patient makes a request for an appointment with a physician and the third available appointment for a new patient physical, routine exam, or return visit exam"

[110] To calculate manually, "Count the number of days between a request for an appointment (e.g., enter dummy patient) with a physician and the third next available appointment for a new patient physical, routine exam, or return visit exam. Report the average number of days for all physicians sampled. Note: Count calendar days (e.g. include weekends) and days off. Do not count any saved appointments for urgent visits (since they are "blocked off" on the schedule.)"

D.3 Past Reports on Scheduling Process

Figure D-3. Previous Reports Relevant to Scheduling Process



Past reports relevant to Scheduling Process

🟦 Identified in study

Ind = Independent Contractor
VA = VA Internal Audit
OIG = VA Office of the Inspector General
GAO = Government Accountability Office

Category	Recommendations	2005	06	07	08	09	10	11	12	13	2014
Scheduling policy	Improve consistency of scheduling policy implementation and compliance	OIG		OIG	OIG				GAO		
	Create new scheduling policy										VA
Consults	Improve process to address unresolved consults	OIG		OIG	OIG					OIG	OIG
	Strengthen coordination of care							OIG	OIG		
	Standardize consult process across facilities				OIG				OIG		
	Minimize screening process				Ind						
Wait lists	Standardize EWL and other wait list management processes			OIG	OIG			OIG			
	Monitor more closely NEAR list and panel sizes								OIG		OIG
	Implement national review of wait lists										OIG
Patient reminders	Standardize processes to reduce missed opportunities				OIG						

Note: A 2001 GAO study recommending changes in consult processes was not included on graphic due to space constraints

Appendix E Scheduling System

E.1 Additional Detail on Scheduling System

Table E-1. MASS Setup Unique/High Priority Business Needs

Medical Application Scheduling System Setup		
ID	**Feature or Characteristic**	**Measure of success**
UHP1.1	▪ Current VistA reporting and DSS coding must continue to support non-scheduling business processes as it does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 1.2	▪ Resources, such as provider, support staff, equipment and facilities, can be configured for availability and services	▪ When scheduling appointments, those resources required to fulfill the appointment that are available and appropriate are presented. ▪ Scheduling is simplified because business rules are captured during setup and used throughout the scheduling processes ▪ Errors in scheduling are reduced because the solution prompts, warns or otherwise enforces the configured business rules
UHP 1.3	▪ Ability to create system level configurable business rules that are leveraged throughout the scheduling process	▪ Automation of business rules throughout the process
UHP 1.4	▪ Access to schedule resources must be role-based, allowing for various levels of access.	▪ Different user groups may be granted differing levels of access throughout the system, at the functional level (view appointment vs schedule appointment) and at the data level (one facility vs another, one service line vs another)
UHP 1.5	▪ Development and sharing of templates to ease implementation	▪ Templates for facility or service configurations can be created and shared, allowing for easy propagation of common configuration of business rules
UHP 1.6	▪ Configuration must mirror the multi-level construct of VHA, national, VISN, Health System, Facility, Outpatient clinics,	▪ A policy established at any level of the hierarchy is automatically enforced (soft enforcement with a warning, hard

Medical Application Scheduling System Setup		
ID	**Feature or Characteristic**	**Measure of success**
	allowing for cascading of policy via business rule enforcement	enforcement with a prohibition of capability) downstream

SOURCE: MASS Business Blueprint, 2014

Table E-2. Manage Veteran Information Unique/High Priority Business Needs

Manage Veteran Information		
ID	**Feature or Characteristic**	**Measure of success**
UHP 2.1	▪ VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 2.2	▪ The scheduling solution shall capture special needs and preferences for each patient	▪ Schedulers can easily identify patients with special needs and preferences and use this information throughout scheduling processes
UHP 2.3	▪ Patient information must be consistent with other VA data about the patient	▪ The same patient data update does not have to occur more than once because the initial update was not propagated
UHP 2.4	▪ Patient information is shared with any facility where the patient will be seen	▪ Patients scheduled in a facility that is not their preferred facility will have the patient information at the time of service
UHP 2.5	▪ VHA eligibility and enrollment data must be integrated into scheduling process	▪ Scheduling process takes into consideration the eligibility of the patient throughout the scheduling process
UHP 2.6	▪ The scheduling solution shall allow patients to schedule appointments at any facility based upon service line permissions and patient permissions	▪ The patient can access their personal information and applicable lists of available appointments for any facility ▪ The patients can schedule an appointment at any facility
UHP 2.7	▪ New, easily accessible reporting capability allowing for broader analysis (across VHA) and deeper analysis (category of patient, condition, era, etc.) of scheduling performance	▪ Easily accessible data for trend analysis across the VA (broad analysis) as well as deep analysis for specific conditions or populations

SOURCE: MASS Business Blueprint, 2014

Table E-3. Request Management Unique/High Priority Business Needs

Request Management		
ID	**Feature or Characteristic**	**Measure of success**
UHP 3.1	▪ VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 3.2	▪ Able to capture requests for service from multiple sources, to include NEAR, EWL, Recall, patient, providers	▪ All current list purposes are captured and maintained
UHP 3.3	▪ Patients are able to request care using different modes such as email, web access, mobile applications, etc.	▪ Patients can request appointments via different modes such as email, web access, mobile applications, etc. ▪ Routine or follow up appointments are easily scheduled without error by patients without the aid of a VHA scheduler
UHP 3.4	▪ Robust capability to manage multiple sources of requests to achieve appointment fulfillment rate standards	▪ Schedulers can create appointments directly from the list to improve efficiency rates, reduce data and scheduling errors, provide traceability and ensure accountability of all list entries
UHP 3.5	▪ Able to track all dates associated with any services from VA. Dates/times should be system-protected and not changed, reportable, auditable	▪ When VHA can track all patient interactions with VHA services from first contact to the end of provided care. Dates/times should be system-protected and not changed

SOURCE: MASS Business Blueprint, 2014

Table E-4. Appointment Management Unique/High Priority Business Needs

Appointment Management		
ID	**Feature or Characteristic**	**Measure of success**
UHP 4.1	▪ Current VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption

Appointment Management		
ID	**Feature or Characteristic**	**Measure of success**
UHP 4.2	▪ Capture preferred date in accordance with policy for each appointment created	▪ When preferred date is captured indicating the source of the preferred date (patient, provider, other) for each individual appointment
UHP 4.3	▪ Automated implementation of business rules as configured (setup) when searching for resources and creating appointments	▪ Scheduler training requirements are decreased since majority of business rules are automated ▪ Reduction in scheduling errors because of automated business rules ▪ Scheduler has immediate feedback and visibility when scheduling outside of policy, guidance or business rules
UHP 4.4	▪ Flexibility to substitute appropriate resources assigned to appointment	▪ Reduced cancellations due to short term unavailability of resource
UHP 4.5	▪ Improve notification process through capture of patient preference for notification, configurable and enforceable notification templates	▪ Patients consistently receive notifications in their preferred method (phone, email, USPS) in a timely and accurate manner
UHP 4.6	▪ Ability to coordinate multiple resource sets at multiple locations for a single appointment (telehealth)	▪ Telehealth appointments are coordinated seamlessly between the provider(s), equipment, facilities and patients with on time delivery of care, no lost time due to poorly coordinated appointments
UHP 4.7	▪ Ability to link associated and/or dependent appointments	▪ Schedulers able to view, coordinate and link multiple appointments (series or multiple same-day)
UHP 4.8	▪ Create appointment for any service at any facility and delivery type based upon role-based access as defined in setup	▪ Patients can schedule services as they desire

Appointment Management		
ID	**Feature or Characteristic**	**Measure of success**
UHP 4.9	▪ Ability to coordinate multiple appointments for a patient	▪ Patients have an itinerary of appointments that suits their needs, with appointments coordinated in an efficient manner
UHP 4.10	▪ Use scheduling preferences when scheduling appointments	▪ Patients preferences are automatically considered when creating appointments
UHP 4.11	▪ Coordinate special needs throughout scheduling process	▪ Staff are aware of and prepared for patients with special needs when they are being scheduled and when they present for care

SOURCE: MASS Business Blueprint, 2014

Table E-5. Coordinate Associated and Occasion of Service Unique/ High Priority Business Needs

Coordinate Associated and Occasions of Service		
ID	**Feature or Characteristic**	**Measure of success**
UHP 5.1	▪ VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 5.2	▪ Need to make travel reimbursement data available to the travel determination process	▪ Travel pay is consistent with patient schedules
UHP 5.3	▪ Request scheduling data from non-VA health care delivery	▪ Patient's pending appointments include all care delivery, to include delivery from non-VA health care delivery sources
UHP 5.4	▪ Coordinate consults and resultant appointments across service lines to reduce waiting time	▪ Wait times for consults are reduced, data is not lost, easily able to report on consults and resultant appointments ▪ Seamless integration of data from consults to scheduled appointments
UHP 5.5	▪ Schedule health care delivery modes including home based health care, telehealth & phone/email/web services	▪ Appointments can be scheduled for telehealth, home health, email, phone and other care delivery options

SOURCE: MASS Business Blueprint, 2014

Table E-6. Manage Encounter of Care Unique/High Priority Business Needs

Manage Encounter of Care		
ID	**Feature or Characteristic**	**Measure of success**
UHP 6.1	▪ Current VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 6.2	▪ Timestamps to capture Veteran cycle of care and episode of care, starting from first contact with VA	▪ Veteran contact date/wait time or care cycle can be tracked by type of services received, time to complete requested service or segment of services received
UHP 6.3	▪ Efficiently exchange scheduling data with encounter data throughout scheduling process	▪ Data is not lost and data quality is improved because of decreased manual entry of data

SOURCE: MASS Business Blueprint, 2014

Table E-7. Report Management Unique/High Priority Business Needs

Report Management		
ID	**Feature or Characteristic**	**Measure of success**
UHP 7.1	▪ VistA Scheduling data must continue to support current VistA reporting, DSS coding and other non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 7.2	▪ Robust data analysis features and capability based on consistent, standard data	▪ Veteran contact date/wait time or care cycle can be tracked by type of services received, time to complete requested service or segment of services received
UHP 7.3	▪ Additional data elements captured to provide more detailed wait time and patient care measures	▪ Data is not lost and data quality is improved because of decreased manual entry of data
UHP 7.4	▪ Capture data to report resource and capacity utilization	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 7.5	▪ Visual display of data throughout scheduling process (calendar view or other)	▪ Veteran contact date/wait time or care cycle can be tracked by type of services

Report Management		
ID	**Feature or Characteristic**	**Measure of success**
		received, time to complete requested service or segment of services received
UHP 7.6	▪ Easily accessible reporting capability allowing for broader analysis (across VHA) and deeper analysis (category of patient, condition, era, etc.) of scheduling performance	▪ Data is not lost and data quality is improved because of decreased manual entry of data

SOURCE: MASS Business Blueprint, 2014

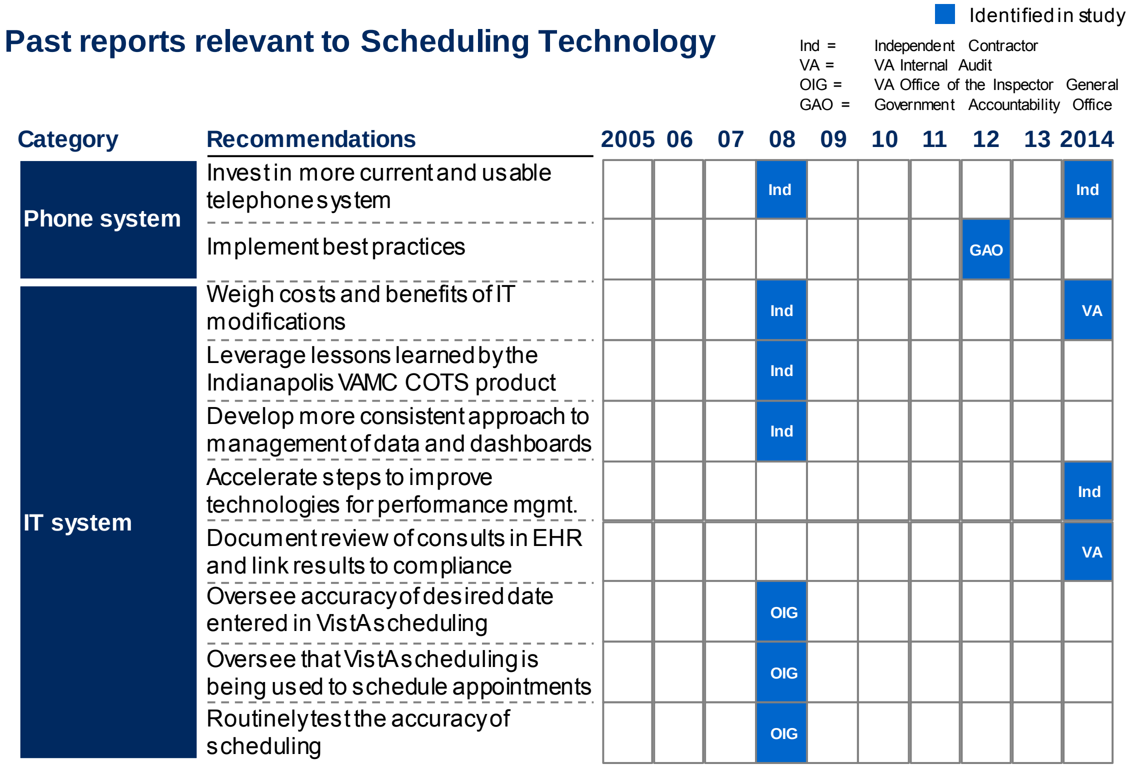
E.2 Best Practices and Benchmarks for Scheduling System

Table E-8. Scheduling Systems – Best Practices and Benchmarks

Best practice/benchmark
▪ Use IE/OR models to determine what types of data are needed to support future operational decisions (Gupta and Denton, 2007)
▪ Build automation into the scheduling system and mobile apps to "eliminate dependence on individual diligence or memory" (Brandenburg et al., 2015)
▪ Solidify the technology/business relationship via governance. Integrate technology into strategic planning. Set and shape a simple, multi-year roadmap for overall business strategy. Establish an open planning process. Teach and promote communication and relationship skills (Faeth, 2012)
▪ Stick to the schedule. Resist changes to a project's scope. Break the project into discrete modules. Assemble a team that includes IT experts, outside experts, and vendors. Prevent turnover among team members. Frame the initiative as a business endeavor, not a technical one. Focus on a single target and measure every activity against it (Flyvbjerg and Budzier, 2011).
▪ Assess if the company is strong enough to absorb the hit if the IT project goes over budget 400% and less than half the expected benefits are realized. And assess if the company can take the hit if 15% of its medium-sized tech projects exceed costs by 200% (Flyvbjerg and Budzier, 2011).
▪ Break big projects down into limited size; make contingency plans to deal with unavoidable risks; use the best possible forecasting techniques (Flyvbjerg and Budzier, 2011)

E.3 Past Reports for Scheduling System

Figure E-1. Past Reports for Scheduling Systems



Past reports relevant to Scheduling Technology

🟦 Identified in study

Ind = Independent Contractor
VA = VA Internal Audit
OIG = VA Office of the Inspector General
GAO = Government Accountability Office

Category	Recommendations	2005	06	07	08	09	10	11	12	13	2014
Phone system	Invest in more current and usable telephone system				Ind						Ind
	Implement best practices								GAO		
IT system	Weigh costs and benefits of IT modifications				Ind						VA
	Leverage lessons learned by the Indianapolis VAMC COTS product				Ind						
	Develop more consistent approach to management of data and dashboards				Ind						
	Accelerate steps to improve technologies for performance mgmt.										Ind
	Document review of consults in EHR and link results to compliance										VA
	Oversee accuracy of desired date entered in VistA scheduling				OIG						
	Oversee that VistA scheduling is being used to schedule appointments				OIG						
	Routinely test the accuracy of scheduling				OIG						

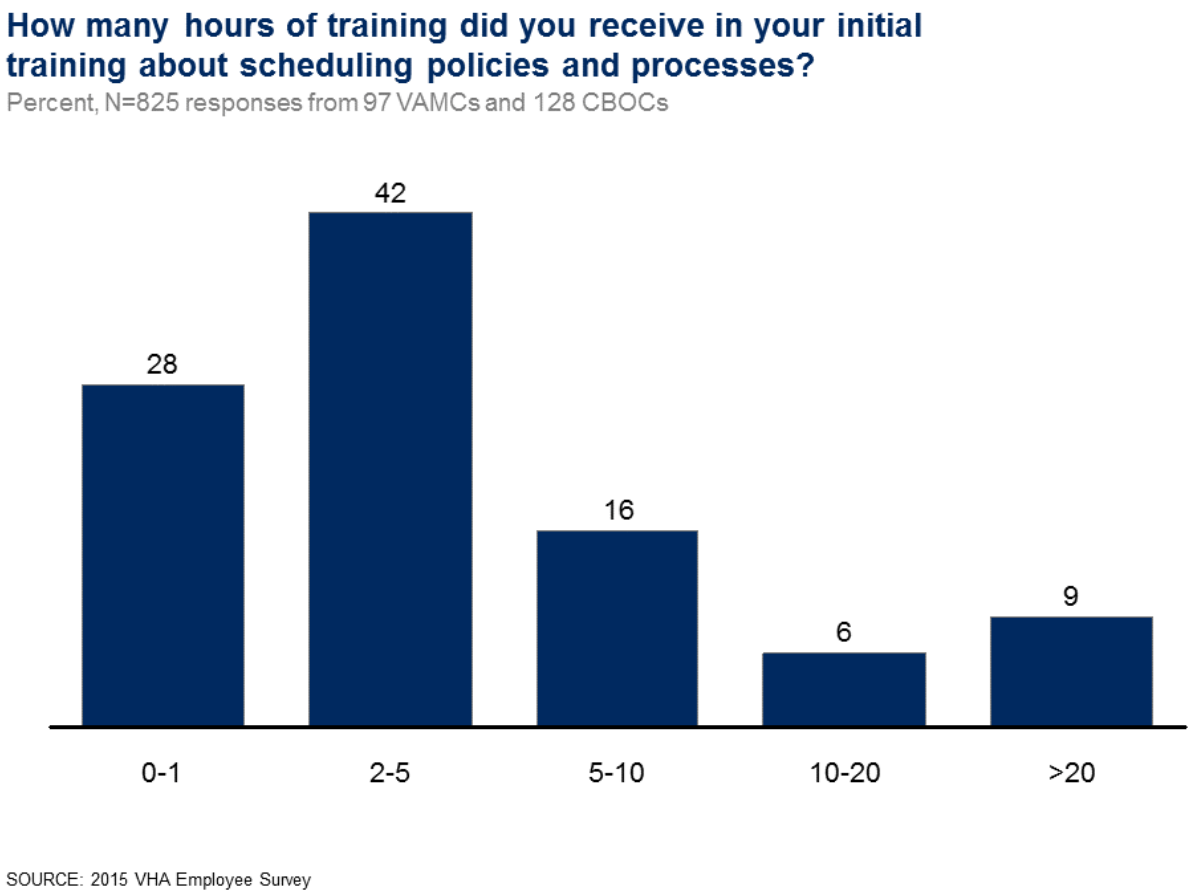
Appendix F Scheduler Training

F.1 Additional Detail on Scheduler Training

Table F-1. Scheduler Training – Initial TMS Training for Schedulers

TMS content description		
Topic	**Format**	**Time covered**
Business rules ▪ Definitions ▪ Scheduling Rules ▪ Recall List	TMS online module	Self-paced, approx. 1 hour
Make an appointment ▪ NEAR ▪ EWL ▪ Recall Reminder ▪ Pending Consults Lists ▪ Appointment Management Options ▪ Clinical Grids ▪ Unscheduled Appointments	TMS online module	Self-paced, approx. 1 hour
Recall/reminder ▪ Recall Reminder Software Functions	TMS online module	Self-paced, approx. 1 hour
Soft skills ▪ How to interact with Veterans	Classroom	4 hours

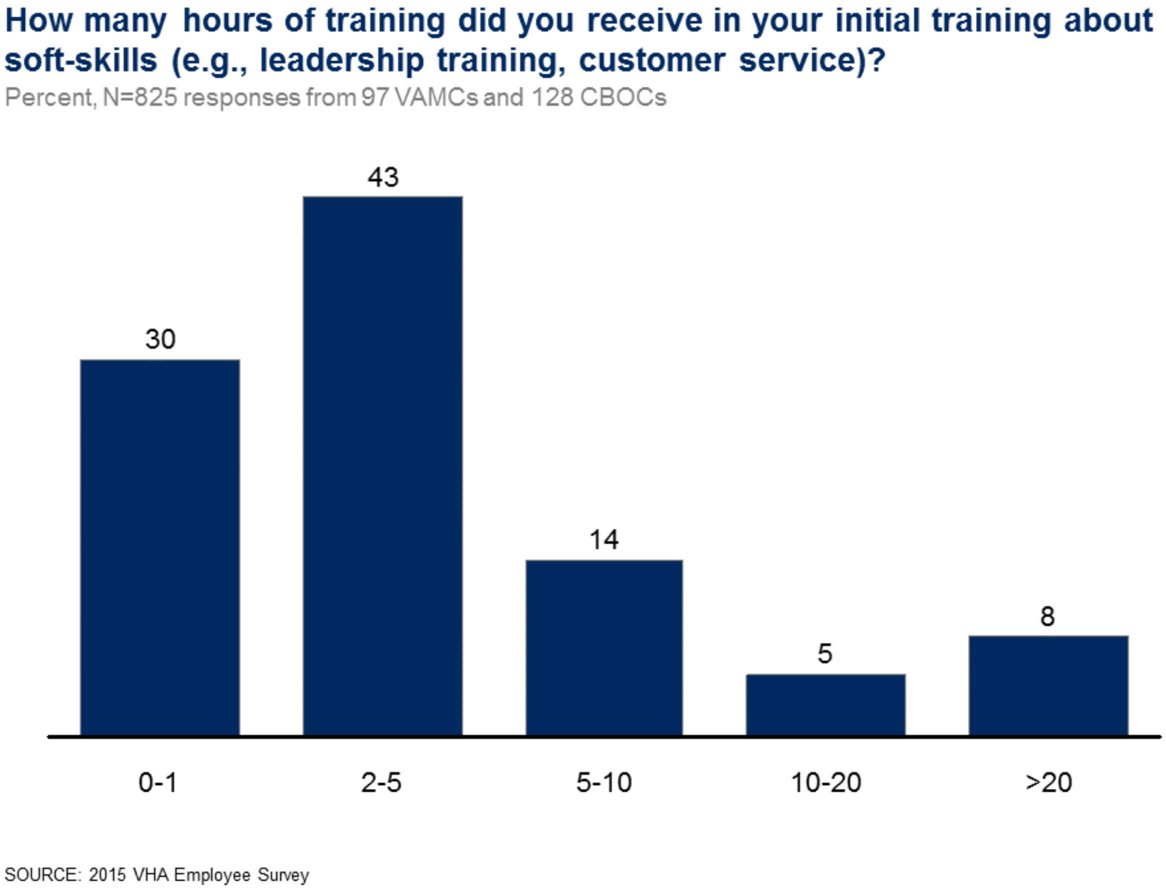
Figure F-1. Scheduler Training – Initial Training for Schedulers on Policies and Processes


How many hours of training did you receive in your initial training about scheduling policies and processes?

Percent, N=825 responses from 97 VAMCs and 128 CBOCs

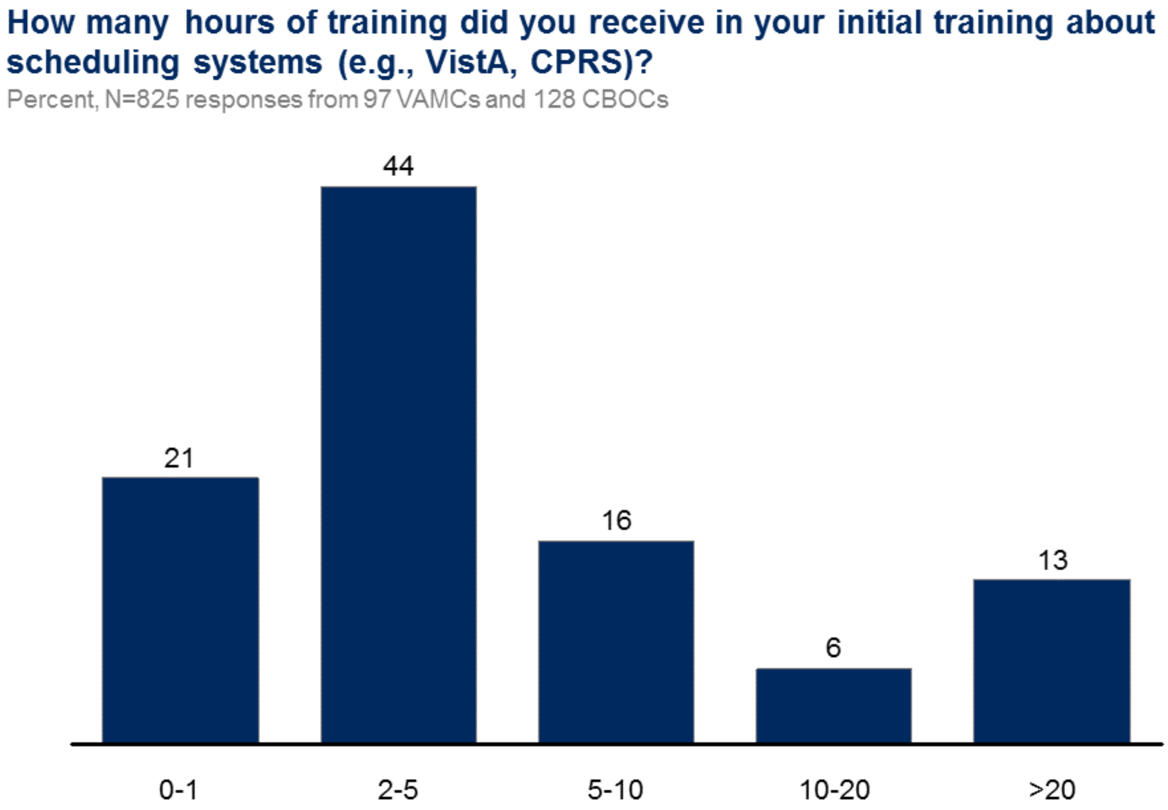
SOURCE: 2015 VHA Employee Survey

Figure F-2. Scheduler Training – Initial Training for Soft Skills



SOURCE: 2015 VHA Employee Survey

Figure F-3. Scheduler Training – Initial Training for Scheduling Systems



How many hours of training did you receive in your initial training about scheduling systems (e.g., VistA, CPRS)?

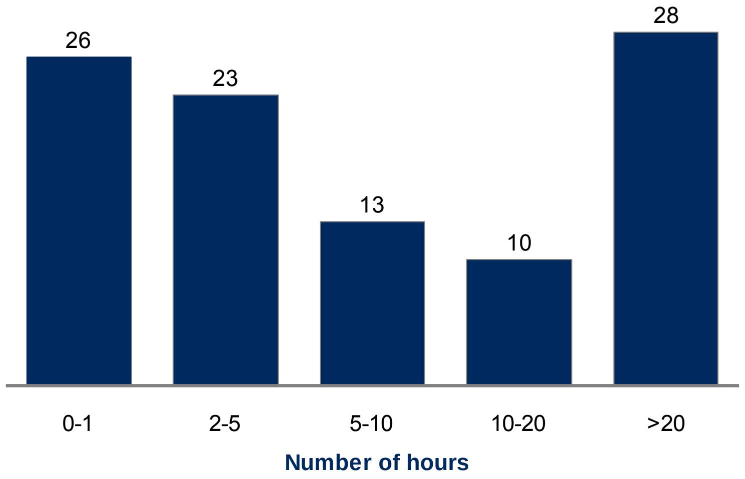
Percent, N=825 responses from 97 VAMCs and 128 CBOCs

SOURCE: 2015 VHA Employee Survey

Figure F-4. Scheduler Training – Initial Training for Scheduling Systems

How many hours of on the job training (e.g., side by side coaching, receiving feedback) did you receive in your initial training?

Percent of schedulers, N = 825 responses from 97 VAMCs and 128 CBOCs



SOURCE: 2015 VHA Employee Survey

F.2 Best Practices and Benchmarks for Scheduler Training

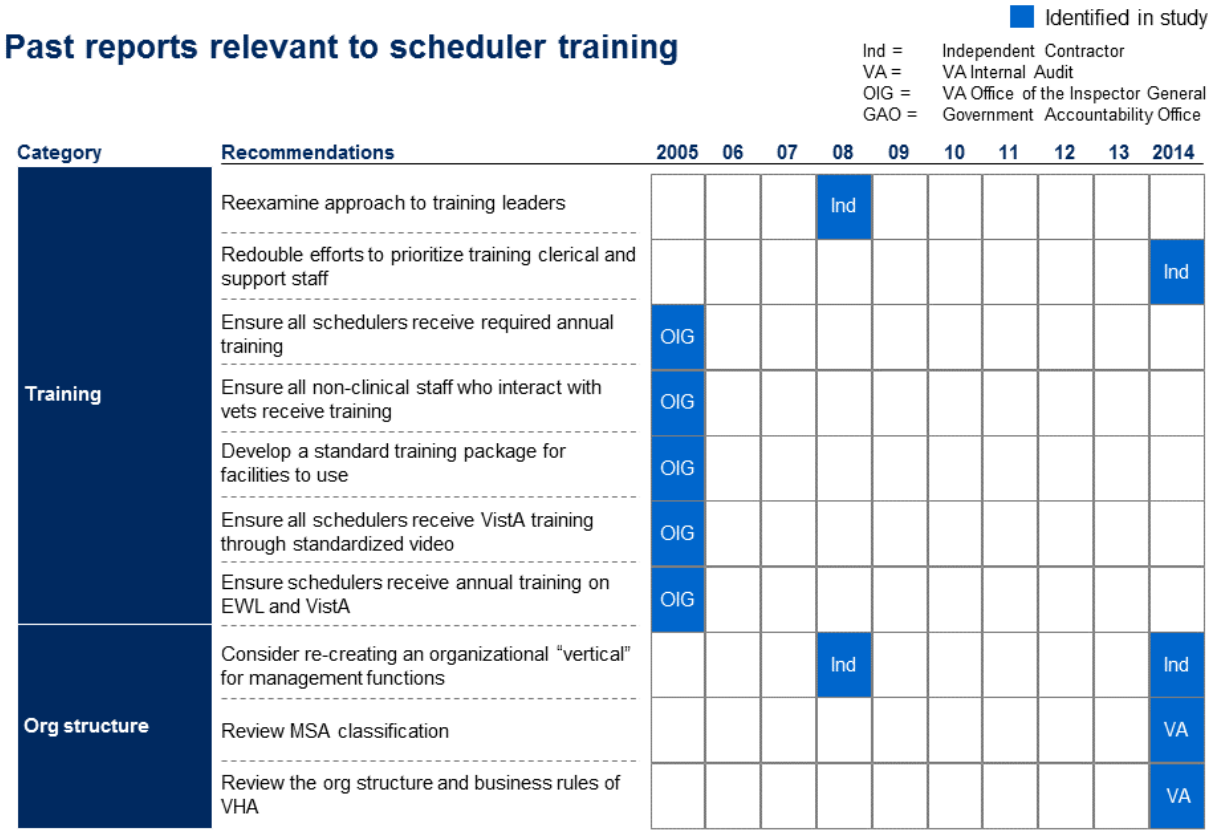
Table F-2. Training – Best Practices and Benchmarks

Component	Best practice/Benchmark
Content	▪ Provide schedulers protocols, cheat sheets, and simplified guidance to ensure consistency in scheduling ("Management," 2010)
	▪ Link training content to performance objectives and business requirements ("A Guide to," 2015)
	▪ Embed industry-recognized skills certifications into training ("A Guide to," 2015)
Training delivery and assessment	▪ Give front-line employees structured on-the-job training including a stage of competency assessment (Jacobs, 2003)
	▪ Minimize in-classroom training and online modules in favor of experiential activities (Whitmore, 2002)
	▪ Encourage a variety of informal on-the-job learning options (e.g., feedback, networking, stretch assignments ("A Guide to," 2015)

Component	Best practice/Benchmark
Sharing of best practices	▪ Create knowledge and learning platforms that give employees access to content on demand (“A Guide to,” 2015)

F.3 Past Reports for Scheduler Training

Figure F-5. Previous Reports Relevant to Scheduler Training and Operating Structure



Past reports relevant to scheduler training

🟦 Identified in study

Ind = Independent Contractor
VA = VA Internal Audit
OIG = VA Office of the Inspector General
GAO = Government Accountability Office

Category	Recommendations	2005	06	07	08	09	10	11	12	13	2014
Training	Reexamine approach to training leaders				Ind						
	Redouble efforts to prioritize training clerical and support staff										Ind
	Ensure all schedulers receive required annual training	OIG									
	Ensure all non-clinical staff who interact with vets receive training	OIG									
	Develop a standard training package for facilities to use	OIG									
	Ensure all schedulers receive VistA training through standardized video	OIG									
	Ensure schedulers receive annual training on EWL and VistA	OIG									
Org structure	Consider re-creating an organizational “vertical” for management functions				Ind						Ind
	Review MSA classification										VA
	Review the org structure and business rules of VHA										VA

Appendix G Scheduling Call Centers

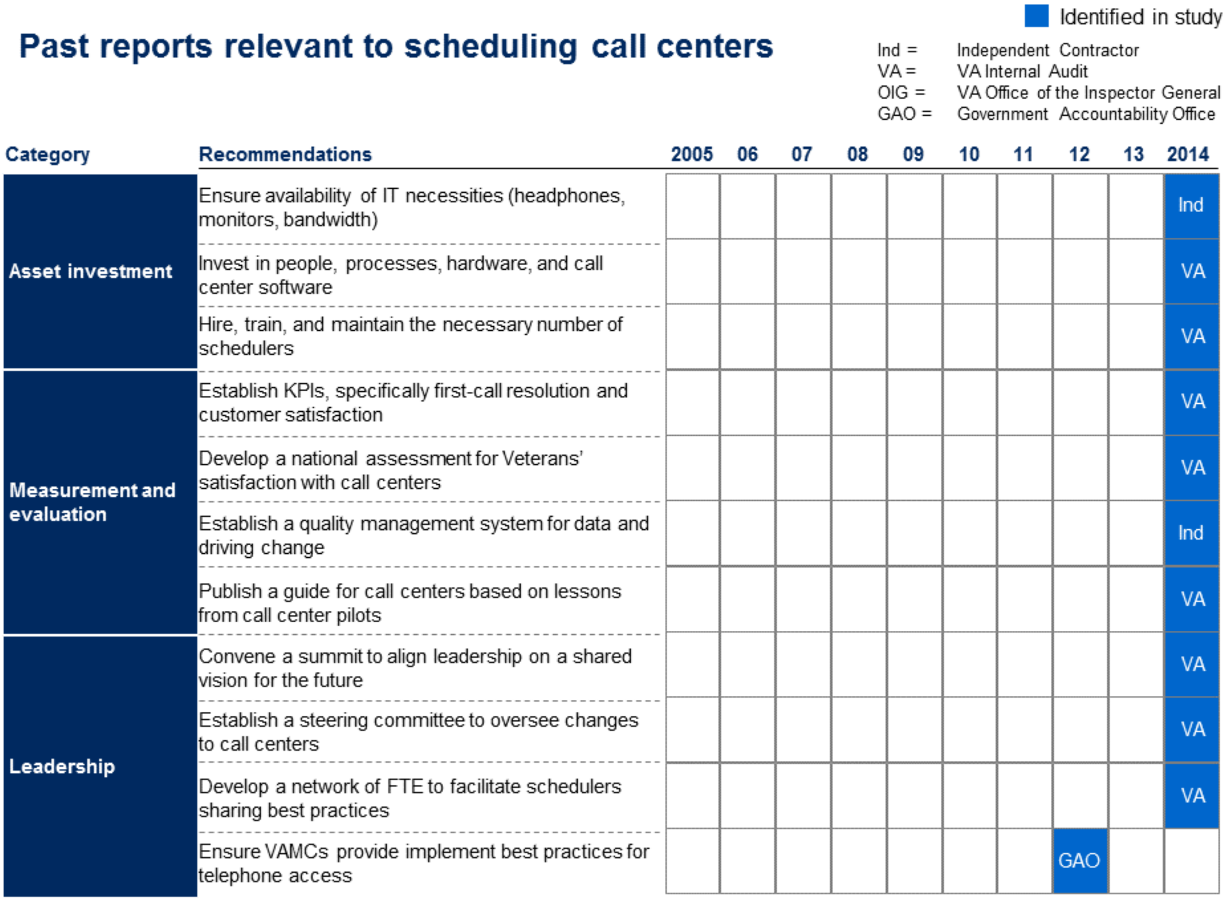
G.1 Best Practices and Benchmarks for Scheduling Call Centers

Table G-1. Call Center – Best practices and Benchmarks

Component	Best practice/Benchmark
Call center staffing and structure	▪ Provided booking operations through remote call centers rather than through on-site schedulers (Gupta and Denton, 2007)
	▪ Centralize call centers to decrease abandoned calls and scheduling error rate and increase physician utilization of scheduling templates and number of patient visits (Rodak, 2013).
	▪ Consolidate operations to achieve five to ten percent technology savings, driven by platform and network savings, shared CRM applications, consolidated customer self-service applications, improved call routing efficiencies, and optimized agent desktop tools ("Contact," 2013)
	▪ Provide in-depth coaching for their frontline staff and have managers co-located with staff to spend significant time with them (Houser, 2015)

G.2 Past Reports for Scheduling Call Centers

Figure G-1. Previous Reports Relevant to Scheduling Call Centers



Past reports relevant to scheduling call centers

🟦 Identified in study

Ind = Independent Contractor
VA = VA Internal Audit
OIG = VA Office of the Inspector General
GAO = Government Accountability Office

Category	Recommendations	2005	06	07	08	09	10	11	12	13	2014
Asset investment	Ensure availability of IT necessities (headphones, monitors, bandwidth)										Ind
	Invest in people, processes, hardware, and call center software										VA
	Hire, train, and maintain the necessary number of schedulers										VA
Measurement and evaluation	Establish KPIs, specifically first-call resolution and customer satisfaction										VA
	Develop a national assessment for Veterans' satisfaction with call centers										VA
	Establish a quality management system for data and driving change										Ind
	Publish a guide for call centers based on lessons from call center pilots										VA
Leadership	Convene a summit to align leadership on a shared vision for the future										VA
	Establish a steering committee to oversee changes to call centers										VA
	Develop a network of FTE to facilitate schedulers sharing best practices										VA
	Ensure VAMCs provide implement best practices for telephone access								GAO		

Appendix H Bibliography

2014 Wounded Warrior Project Survey Report of Findings, Retrieved July 2, 2015, from http://www.woundedwarriorproject.org/media/691673/2014-wwp-alumni-survey-report.pdf, v-vi

30 Ways to Reduce Patient No-shows (2010, July 9). *MGMA In Practice Blog*. Retrieved June 10, 2015, from http://www.mgma.com/blog/30-ways-to-reduce-patient-no-shows

3rd Next Available Appointment. *Cincinnatichildrens.org.* Retrieved June 10, 2015, from http://www.cincinnatichildrens.org/about/quality-measures/system-level-measures/3rd-next-available-appointment/

A Guide to Upskilling America's Frontline Workers, a Handbook for Employers. *Deloitte and the Aspen Institute (2015), 29*. Retrieved June 9, 2015, from http://www.upskillamerica.org/wp-content/uploads/2015/04/Upskilling_Employer_Handbook_042015.pdf

A Physician's Guide to Employment Contracts. *Minnesota Medical Association, 2004.* Retrieved June 10, 2015, from http://www.mnmed.org/portals/mma/publications/reports/physicians_guide_to_employment_agreements.pdf

Access and Coordination of Care at Harlingen Community Based Outpatient Clinic VA Texas Valley Coastal Bend Health Care System Harlingen, Texas (2012, August 22). *Department of Veterans Affairs Office of Inspector General, Report No. 12-01906-259.* Retrieved June 9, 2015, from http://www.va.gov/oig/pubs/VAOIG-12-01906-259.pdf

Access and Operational Efficiency (2011, June). *California Improvement Network: Quarterly Partner Report 1(1).* Retrieved June 10, 2015, from http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/C/PDF%20CINQtrMtngReportMay2011.pdf

Allen, D. G. A Guide to Analyzing and Managing Employee Turnover. *SHRM Foundation's Effective Practice Guidelines Series 2008, Retaining Talent.* Retrieved June 10, 2015, from http://www.shrm.org/about/foundation/research/documents/retaining%20talent-%20final.pdf

American Hospital Association. (2014). *AHA Annual Survey Database, 2014.* Retrieved from www.aha.org

Appointment Checklist. *My.Clevelandclinic.org.* Retrieved June 9, 2015, from http://my.clevelandclinic.org/patients-visitors/prepare-appointment/appointment-checklist

Atherton, H., Sawmynaden, P., Meyer, B., & Car, J. (2012, August 15). Email for the Coordination of Healthcare Appointments and Attendance Reminders. *National Center for Biotechnology Information. Cochrane Database of Systematic Reviews.* doi: 10.1002/14651858.CD007981.pub2.

Audit of Alleged Manipulation of Waiting Times in Veterans Integrated Service Network 3 (2008, May 19). *Department of Veterans Affairs Office of Inspector General, Report No. 07-*

03505-129. Retrieved June 9, 2015, from http://www.va.gov/oig/52/reports/2008/VAOIG-07-03505-129.pdf

Audit of FLITE Program Management's Implementation of Lessons Learned (2009, September 16). *Department of Veterans Affairs, 09-01467-216.* Retrieved June 9, 2015 from http://www.va.gov/oig/52/reports/2009/VAOIG-09-01467-216.pdf

Audit of the Availability of Healthcare Services in the Florida/Puerto Rico Veterans Integrated Service Network (VISN) 8 (2001, August 13). *Department of Veterans Affairs, Office of Inspector General, Report No.: 99-00057-55.* Retrieved June 10, 2015, from http://www.va.gov/oig/52/reports/2001/99-00057-55.pdf

Audit of the Veterans Health Administration's Efforts to Reduce Unused Outpatient Appointments (2008, December 4). *Department of Veterans Affairs Office of Inspector General, Report No. 08-00879-36.* Retrieved June 9, 2015, from http://www.va.gov/oig/52/reports/2009/VAOIG-08-00879-36.pdf

Audit of the Veterans Health Administration's Outpatient Scheduling Procedures (2005, July 8). *Department of Veterans Affairs Office of Inspector General, Report No. 04-02887-169.* Retrieved June 9, 2015, from http://www.va.gov/oig/52/reports/2005/VAOIG-04-02887-169.pdf

Audit of the Veterans Health Administration's Outpatient Waiting Times (2007, September 10). *Department of Veterans Affairs Office of Inspector General, Report No. 07-00616-199.* Retrieved June 9, 2015, from http://www.va.gov/oig/52/reports/2007/VAOIG-07-00616-199.pdf

Bailey, N. A Study of Queues and Appointment Systems in Hospital Outpatient Departments, with Special Reference to Waiting-times. *Journal of the Royal Statistical Society, A14 (1952), 185-189,* doi: citeulike: 3380347

Balance Supply and Demand on a Daily, Weekly, and Long-Term Basis. *Institute for Healthcare Improvement.* Retrieved June 11, 2015 http://www.ihi.org/resources/Pages/Changes/BalanceSupplyandDemandonaDailyWeeklyandLongTermBasis.aspx

Baum, S. (2014, December 10). Allowing Patients to Schedule Appointments Online: A Simple Solution That Could save $3.2 Billion. *Medcitynews.com.* Retrieved June 10, 2015 from http://medcitynews.com/2014/12/letting-patients-schedule-appointments-online/

Belfiore, B., Chatterley, J., Raia D., Grossman, J. (2015, January 28). 41 KPI Industry Report: Health Care – Provider/Hospitals. *BenchmarkPortal.com*. Retrieved on June 10, 2015 from www.BenchmarkPortal.com

Bergevin, R., Kinder, A., Siegel, W., & Simpson, B. (2010, April 16). *Call Centers for Dummies*. Dummies; 2 edition. Retrieved June 11, 2015, from http://www.amazon.com/Call-Centers-Dummies-Real-Bergevin/dp/0470677430

Biese K., Lamantia, M., Shofer, F., McCall, B., Roberts, E., Stearns, S. C., Principe, S., Kizer, J. S., Cairns, C. B., & Busby-Whitehead, J. (2014, February). A Randomized Trial Exploring the

Effect of a Telephone Call Follow-up on Care Plan Compliance among Older Adults Discharged Home from the Emergency Department. *National Center for Biotechnology Information. Acad Emerg Med., 21(2), 188-95.* doi: 10.1111/acem.12308.

Billings, E. (2014, October 6). VistA and Epic: A Tale of Two Systems. *Medsphere.com.* Retrieved June 9, 2015, from http://www.medsphere.com/billings-blog/vista-and-epic-a-tale-of-two-systems

Blueprint for Excellence (2014, September 21). *Department of Veterans Affairs, Veterans Health Administration*. Retrieved June 10, 2015 from: http://www.va.gov/HEALTH/docs/VHA_Blueprint_for_Excellence.pdf

Brandenburg, L., Gabow, P., Steele, G., Toussaint, J., & Tyson, B. J. (2015, February). Innovation and Best Practices in Health Care Scheduling. *Institute Of Medicine, National Academy of Sciences 2015.* Retrieved June 11, 2015, from http://www.iom.edu/~/media/Files/Perspectives-Files/2015/SchedulingBestPractices.pdf

Buttz, L. (2004, July-August). How to Use Scheduling Data to Improve Efficiency. *American Academy of Family Physicians, Family Practice Management, 11(7), 27-23.* Retrieved June 9, 2015, from http://www.aafp.org/fpm/2004/0700/p27.html

Call Center Supervisor Best Practices (2007, July). *Dmgconsult.com. DMG Consulting LLC*. Retrieved June 10, 2015, from http://dmgconsult.com/files/CallCenterSupervisor_BestPractices_White_Paper%20Final.pdf

Cayirli, T., & Veral, E. (2003). Outpatient Scheduling In Health Care: A Review Of Literature. *Researchgate.net*. *Production and Operations Management Society.* Retrieved June 9, 2015, from http://www.researchgate.net/publication/229881171_OUTPATIENT_SCHEDULING_IN_HEALTH_CARE_A_REVIEW_OF_LITERATURE

Chakraborty, S., Muthuraman, K., & Lawley, M. Sequential Clinical Scheduling with Patient No-shows and General Service Time Distributions. *Ioe.engin.umich.edu.* Retrieved June 10, 2015, from http://ioe.engin.umich.edu/class/ioe899/papers/General-Service-Time-Paper.pdf

Charnock, M. (2015, January 20). Online Hospital Booking Sites Like ZocDoc Are Allowing Members To Text-in Their Upcoming Appointments. *The Science Times*. Retrieved June 9, 2015, from http://www.sciencetimes.com/articles/2675/20150120/online-hospital-booking-sites-like-zocdoc-are-allowing-members-to-text-in-their-upcoming-appointments.htm

Chaturvedi, M., & Chaturvedi, A. (2005). Customer Relationship Management. *Excel Books.* Retrieved May 31, 2015

Choice Act interviews (2015). In-person interviews, VHA. (Jan. – Jun. 2015). Interviews include: Access and Clinic Administration Program, Detroit Scheduling Call Center, Health Resource Center, Office of Productivity, Efficiency & Staffing, St. Cloud Business Office, Systems Redesign, VAMC site visits, VHA Central Office.

Choice Ace Pre-site Visit Questionnaire, VHA. 2015.

Chromy, E., Misuth, T., & Kavacky, M. (2011, March). Erlang C Formula and its use in the call centers. *Information and Communication Technologies and Services, 9(1).* Retrieved June 11, 2015, from https://dspace.vsb.cz/bitstream/handle/10084/84489/AEEE-2011-9-1-7-chromy.pdf?sequence=1

Clancy, Carolyn M, MD. Message from the Interim Undersecretary for Health. Internal email. Sent Jun. 2015.

Clarification of VHA Outpatient Scheduling Policy and Procedures and Interim Guidance. (2015, May 18). *Department of Veterans Affairs Memorandum.* Retrieved June 10, 2015.

Clarification of VHA Outpatient Scheduling Policy and Procedures and Interim Guidance National Scheduling "Train the Trainer" Webinar [powerpoint]. (2015, July 7-9). *Department of Veterans Affairs, Access and Clinic Administration Program.*

Clinic Access Index report data (2015). U.S. Department of Veterans Affairs. Provided by The MITRE Corporation 2015.

Clinic Management Instructional Matrix, Version 14. Retrieved from Employee Education System Office.

Cole, O. (2013, August 5). The 56 Second Hold Time Bogey-Average Customer Wait Times: An DialogTech Benchmarking Analysis (Part 2). *DialogTech.com*. Retrieved June 10, 2015, from http://www.dialogtech.com/blog/call-management/the-56-second-hold-time-bogey-average-customer-wait-times-an-ifbyphone-benchmarking-analysis-part-2

Congdon, K. (2014, April 9). Is Epic Future Proof? *Health IT Outcomes.* Retrieved June 9, 2015, from http://www.healthitoutcomes.com/doc/is-epic-future-proof-0001

Consultation Mismanagement and Care Delays Spokane VA Medical Center, Spokane, Washington (2012, September 25). *Department of Veterans Affairs, Office of Inspector General, Report No. 12-01731-284.* Retrieved June 9, 2015, from http://www.va.gov/oig/pubs/VAOIG-12-01731-284.pdf

Contact Better Consultation: A Best Practices Blueprint. *Xerox Corporation 2013.* Retrieved June 10, 2015 from http://www.xerox.com/downloads/services/brochure/contact-center-consolidation.pdf

Corporate Data Warehouse data (2014). U.S. Department of Veterans Affairs. Provided by The MITRE Corporation 2015.

Cosgrove, D. M., Fisher, M., Gabow, P., Gottlieb, G., Halvorson, G. C., James, B. C., Kaplan, G. S., Perlin, J. B.,Petzel, R., Steele, G. D., & Toussaint, J. S. (2013, February). Ten strategies to lower costs, improve quality, and engage patients: The view from leading health system CEOs. *Health Affairs (Millwood) 32(2):321-327.* doi: 10.1377/hlthaff.2012.1074.

CPM Curriculum Outline GPM V12. Retrieved June 10, 2015 from Employee Education System Office

Creating a Patient-Centered Healthcare System. *my.clevelandclinic.org*. Retrieved June 9, 2015, from http://my.clevelandclinic.org/ccf/media/files/redefining-healthcare/patient-centered.pdf

Davis, J., & Glick, N. (2013). Patient Access: The Journey to Just Say Yes. *FTI Consulting*. Retrieved June 11, 2015, from http://www.fticonsulting.com/global2/media/collateral/united-states/fti-whitepaper-just-say-yes.pdf

Decrease Demand for Appointments, Improving Primary Care Access. *Institute for Healthcare Improvement*. Retrieved June 10, 2015, from http://www.ihi.org/resources/Pages/Changes/DecreaseDemandforAppointments.aspx

Defife, J. A., Conklin, C. Z., Smith, J. M., & Poole, J. (2010, September). Psychotherapy appointment no-shows: Rates and reasons. *American Psychological Association 2010, Vol 47(3), 413-417.* Retrieved June 9, 2015, from http://psycnet.apa.org/journals/pst/47/3/413/

Delays for Outpatient Specialty Procedures VA North Texas Health Care System Dallas, Texas (2012, October 23). *Department of Veterans Affairs, Office of Inspector General, Report No. 12-03594-10.* Retrieved June 9, 2015, from http://www.va.gov/oig/pubs/VAOIG-12-03594-10.pdf

Delays in Cancer Care West Palm Beach VA Medical Center West Palm Beach, Florida. (2011, June 29). *Department of Veterans Affairs, Office of Inspector General, Report No. 11-00930-210.* Retrieved June 10, 2015, from http://www.va.gov/oig/54/reports/VAOIG-11-00930-210.pdf

Dental Practice Marketing Guide – Spring 2013 Edition. *SmartPractice*. Retrieved June 10, 2015, from http://www.smartpractice.com/dental/pdfs/smartpractice-marketingguide-spring2013.pdf

Desmarais, M. First Call Resolution (FCR) – The Metric That Matters Most. *Sqmgroup.com.* Retrieved June 10, 2015, from http://www.sqmgroup.com/fcr-metric-that-matters-most#

Disability Compensation (2015, April). *U.S. Department of Veterans Affairs*. Retrieved June 10, 2015, from http://benefits.va.gov/BENEFITS/factsheets/serviceconnected/Compensation.pdf

Dockery, F., Rajkumara, C., Chapmana, C., Bulpitta, C., & Nichollb, C. (2001). The Effect of Reminder Calls in Reducing Non-Attendance Rates at Care of the Elderly Clinics. *Postgraduate Medical Journal, 77:37-39.* doi: 10.1136/pmj.77.903.37

Dolan, B. (2010, January 6). Kaiser Permanente's SMS reminders go live. *Mobihealthnews.com.* Retrieved June 9, 2015, from http://mobihealthnews.com/5933/kaiser-permanentes-sms-reminders-go-live/

Dorn, W. J. B. (2013, September 6). Gastroenterology Consult Delays, VA Medical Center Columbia, South Carolina *Department of Veterans Affairs Office of Inspector General, Report No. 12-04631-313.* Retrieved June 9, 2015, from http://www.va.gov/oig/pubs/VAOIG-12-04631-313.pdf

Draper, D. A. (2013, March 14). Appointment Scheduling Oversight and Wait Time Measures Need Improvement. *United States Government Accountability Office, Testimony Before the Subcommittee on Oversight and Investigations, Committee on Veterans' Affairs, House of Representatives, GAO-13-372T.* Retrieved June 10, 2015, from http://www.gao.gov/assets/660/652795.pdf

Draper, D. A. (2014, April 9). Ongoing and Past Work Identified Access Problems That May Delay Needed Medical Care for Veterans. *United States Government Accountability Office, Testimony Before the Committee on Veterans' Affairs, House of Representatives, GAO-14-509T*. Retrieved June 10, 2015, from http://www.gao.gov/assets/670/662395.pdf

Draper, D. A. (2013, February 13). Reported Outpatient Medical Appointment Wait Times Are Unreliable. *United States Government Accountability Office, Statement for the Record to the Committee on Veterans' Affairs, U.S. House of Representatives, GAO-13-363T.* Retrieved June 10, 2015, from http://www.gao.gov/assets/660/652104.pdf

Draper, D. A. (2014, May 15). VA Lacks Accurate Information about Outpatient Medical Appointment Wait Times, Including Specialty Care Consults. *United States Government Accountability Office, Testimony Before the Committee on Veterans' Affairs, U.S. Senate, GAO-14-620T*. Retrieved June 10, 2015, from http://www.gao.gov/assets/670/663193.pdf

Dwivedi, M. (2014, January 15). Clueless? A List to Help Choose the BEST Appointment Scheduling Software. *Setmore.com.* Retrieved June 10, 2015, from http://www.setmore.com/blog/best-appointment-scheduling-software-features/

Electronic Waiting List Management for Mental Health Clinics Atlanta VA Medical Center Atlanta, Georgia (2011, July 12). *Department of Veterans Affairs, Office of Inspector General, Report No. 10-02986-215.* Retrieved June 10, 2015, from http://www.va.gov/oig/54/reports/VAOIG-10-02986-215.pdf

Elliott, V. S. (2012, June 4). How to Make the Most of Patient Scheduling Reminders. *Amednews.com.* Retrieved June 10, 2015, from http://www.amednews.com/article/20120604/business/306049968/5/

Ensuring Consistency Through Innovative E-Learning Global Inducution Program. *Cadbury Case Study, Element K 2009.* Retrieved June 10, 2015, from https://www.trainingindustry.com/media/3258170/element%20k%20cadbury%20case%20study.pdf

Evaluation of the Veterans Health Administration's National Consult Delay Review and Associated Fact Sheet (2014, December 15). *Department of Veterans Affairs, Office of Inspector General, Report No. 14-04705-62.* Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/VAOIG-14-04705-62.pdf

Faeth, F. (2012). IT Project Failure Rates: Facts and Reasons. *Feith Consulting*. Retrieved June 10, 2015.

Finn, B. J. (2007). Hearing on Veterans Health Administration's Outpatient Waiting Times. *Office of Inspector General, Department of Veterans Affairs, Before Subcommittee on Oversight and*

Investigations and Subcommittee on Health Committee on Veterans' Affairs, United States House of Representatives. Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/statements/VAOIG-statement-20071212-finn.pdf

Fisher, S. E. (2012, March). 10 Tips for Effective Appointment Scheduling. *American Academy of Orthopaedic Surgeons.* Retrieved June 10, 2015, from http://www.aaos.org/news/aaosnow/mar12/managing6.asp

Flyvbjerg, B., & Budzier, A. (2011, September). Why Your IT Project May Be Riskier than You Think. *Harvard Business Review*. Retrieved June 10, 2015.

Freifeld, L. Online vs. In-Class Success. *Trainingmag.com.* Retrieved June 10, 2015, from http://www.trainingmag.com/trgmag-article/online-vs-class-success

Frisbee, K.L. (2015). Connected Health at the Department of Veterans Affairs. Office of Informatics and Analytics Veterans Health Administration. Retrieved June 10, 2015 from http://slideplayer.com/slide/4004048/

Gabow, P.A., and Goodman, P.L. (2015). The Lean Prescription: Powerful Medicine for Our Ailing Healthcare System. London, UK: CRC Press.

Gale, S. F. (2013, October 8). Onboarding: Tips and Best Practices for Bringing New Workers on Board. *Workforce.com.* Retrieved June 10, 2015, from http://www.workforce.com/articles/19977-onboarding-tips-and-best-practices-for-bringing-new-workers-on-board

Galewitz, P. (2011, January 3). More Patients Making Appointments Online As Doctors Embrace Web. *Kaiser Health News.* Retrieved June 9, 2015, from http://khn.org/news/zocdoc/

Gold, A. (2014, June 13). VA scheduling fiasco: A tale of 2 softwares. *PoliticoPro.* Retrieved June 9, 2015, from http://www.politico.com/story/2014/06/va-schedule-software-problems-107839.html

Griffin, R. J. (2014, May 15). The State of VA Health Care. *Office of Inspector General, Department of Veteran Affairs, Before the Committee on Veterans' Affairs, United States Senate.* Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/statements/VAOIG-statement-20140515-griffin.pdf

Grote, D. (2011, September 12). The Myth of Performance Metrics. *Harvard Business Review.* Retrieved June 10, 2015, from https://hbr.org/2011/09/the-myth-of-performance-metric

Groves, K. S. (2006, March). Integrating Leadership Development and Succession Planning Best Practices. *Journal of Management Development 26(3), 239-60. Bschool.pepperdine.edu.* Retrieved June 10, 2015, from http://bschool.pepperdine.edu/about/people/faculty/appliedresearch/content/groves3.pdf

Gupta, D., & Denton, B. (2007, December). Appointment Scheduling in Health Care: Challenges And Opportunities. *Researchgate.net*. doi: 10.1080/07408170802165880

Hamilton, B. A. (2008, July 11). Final Report on the Patient Scheduling and Waiting Times Measurement Improvement Study.

Harris, K., Galasso, J., Eibner, C. (2008). Review and Evaluation of the VA Enrollee Health Care Projection Model. RAND Center for Military Health Policy Research. Retrieved August 13, 2015, from http://www.rand.org/content/dam/rand/pubs/monographs/2008/RAND_MG596.pdf

Harrison, P. L., Hara, P. A., Pope, J. E., Young, M. C., & Rula, E. Y. (2011, February). The Impact of Postdischarge Telephonic Follow-Up on Hospital Readmissions. *National Center for Biotechnology Information. Popul Health Manag, 14(1), 27–32.* doi: 10.1089/pop.2009.0076.

Hashim, M. J., Franks, P., & Fiscella, K. (2001, March 14). Effectiveness of Telephone Reminders in Improving Rate of Appointments Kept at an Outpatient Clinic: A Randomized Controlled Trial. *Jabfm.org.* Retrieved June 10, 2015, from http://www.jabfm.org/content/14/3/193.full.pdf

Haynes, J. M., & Sweeney, E. L. (2006, January). The Effect of Telephone Appointment-reminder Calls on Outpatient Absenteeism in a Pulmonary Function Laboratory. *National Center for Biotechnology Information. Respiratory Care, 51(1), 36-9.* Retrieved June 10, 2015, from http://www.ncbi.nlm.nih.gov/pubmed/16381615

Healthcare Inspection Evaluation of the Veterans Health Administration’s National Consult Delay Review and Associated Fact Sheet (2014, December 15). *Department of Veterans Affairs, Office of Inspector General, Report No. 14-04705-62.* Retrieved June 9, 2015, from http://www.va.gov/oig/pubs/VAOIG-14-04705-62.pdf

Health Care Staffing Services Performance Measurement Implementation Guide 2nd Edition (2010, March). *Jointcommission.org.* Retrieved June 10, 2015, from http://www.jointcommission.org/assets/1/18/hcss_pm_implementation_guide2_march2010.pdf

HealtheVet Scheduling Analysis of Alternatives (2009, December). *AoA Study Team. Department of Veterans Affairs.* Retrieved June 10, 2015.

Heaney, D. J., Howie, J. G., & Porter, A. M. Factors Influencing Waiting times and Consultation times in General Practice. *The British Journal of General Practice, ncbi.nlm.nih.gov*. Retrieved June 9, 2015, from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1371752/

Henry Ford Facts and Statistics (2015). *Henry Ford Health System.* Retrieved June 11, 2015 from, http://www.henryford.com/body.cfm?id=38768

Ho, C. & Lau, H. (1992, December). Minimizing Total Cost in Scheduling Outpatient Appointments. *INFORMS. 38 (12), 1750-1764.* Retrieved June 9, 2015, from http://www.jstor.org/discover/10.2307/2632708?uid=2129&uid=2134&uid=3737784&uid=2&uid=70&uid=4&sid=21106363577341

Holman, D., Batt, R., & Holtgrew, U. (2007, January). The Global Call Center Report: International Perspective on Management and Employment. *ILR Collection*. Retrieved June 11, 2015, from http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1011&context=reports

Horvath, M., Levy, J., L'Engle, P., Carlson, B., Ahmad, A., & Ferranti, J. (2011, May 26). Impact of Health Portal Enrollment with Email Reminders on Adherence to Clinic Appointments: A Pilot Study. *National Center for Biotechnology Information. Journal of Medical Internet Research, 13(2), e41.* doi: 10.2196/jmir.170.

Hospital Consumer Assessment of Healthcare Providers and Systems Survey (HCAHPS). Retrieved June 11, 2015, from http://www.hcahpsonline.org/home.aspx

Houser, C. (2015, March 16). DATAMARK Infographic States Benefits of Call Center Consolidation. *Interactive Intelligence.* Retrieved June 11, 2015, from http://www.ihi.org/resources/Pages/Changes/UseRegularHuddlesandStaffMeetingstoPlanProductionandtoOptimizeTeamCommunication.aspx

How to Reduce No-Show Rates and Increase Revenue. *Appointment Plus*. Retrieved June 10, 2015, from http://www.appointment-plus.com/pdf/No-Show-whitepaper.pdf

Huddles. *Institute for Healthcare Improvement Cambridge, Massachusetts, USA.* Retrieved June 9, 2015, from http://www.ihi.org/resources/Pages/Tools/Huddles.aspx

Implementing VHA’s Mental Health Strategic Plan Initiatives for Suicide Prevention. (2007, May 10). *Department of Veterans Affairs, Office of Inspector General, Report No. 06-03706-126.* Retrieved June 10, 2015, from http://www.va.gov/oig/54/reports/VAOIG-06-03706-126.pdf

Izard, T. (2005, February). Managing the Habitual No-Show Patient. *American Academy of Family Physicians, Family Practice Management*, *12(2), 65-66.* Retrieved June 10, 2015, from http://www.aafp.org/fpm/2005/0200/p65.html

Jacobs, R.L. (2003). Structured on-the-job training: Unleashing employee expertise in the workplace. (2nd ed.). San Francisco, Berrett-Koehler Publications, INC.

Kane, L., & Peckham, C. (2014, April 15). Medscape Physician Compensation Report 2014. *Medscape.com.* Retrieved June 11, 2015, from http://www.medscape.com/features/slideshow/compensation/2014/public/overview

Kannisto, K. A., Koivunen, M. H., & Välimäki, M. A. (2014, October 17). Use of Mobile Phone Text Message Reminders in Health Care Services: A Narrative Literature Review. *National Center for Biotechnology Information. Journal of Medical Internet Research, 16(10), e222.* doi: 10.2196/jmir.3442.

Kaplan, K. C. (2014, May 7). Physician Compensation Fair Market Value: The Perils of Compensation per Work RVU Benchmarks. *Hfma.org.* Retrieved June 10, 2015, from https://www.hfma.org/Content.aspx?id=22685

Kehle, S. M., Greer, N., Rutks, I., & Wilt, T. (2011, November). Interventions to improve Veterans’ access to care: A systematic review of the literature. *Journal of General Internal Medicine 26(Supplement 2):689- 696*. doi: 10.1007/s11606-011-1849-8.

Koch, T., & Bear, S. (2012, May). Building Capabilities for Performance. *McKinsey Capability Center*, *Chapter 1.* Retrieved June 9, 2015, from http://www.capability-center.mckinsey.com/download/Capability_for_performance_the_path_to_excellence.pdf

Konkel, F. (2013, May 1). What's wrong with IT at Veterans Affairs? *The Business of Federal Technology.* Retrieved June 9, 2015, from http://fcw.com/Articles/2013/05/01/Veterans-affairs-trouble.aspx?Page=2

Koshy, E., Car, J., & Majeed, A. (2008, May 31). Effectiveness of mobile-phone short message service (SMS) reminders for ophthalmology outpatient appointments: Observational study. *BMC Ophthalmol.* doi: 10.1186/1471-2415-8-9.

Kumar, P., Soni, V., & Sutaria, S. The Access Imperative. *Healthcare.mckinsey.com.* Retrieved June 10, 2015, from http://healthcare.mckinsey.com/sites/default/files/McK%20white%20paper_Patient%20Access_Nov%202014.pdf

Kutscher, B. (2014, March 8). More Hospitals Are Using Technology to Improve Access and Expand Their Networks with Other Hospitals, Physicians. *Modernhealthcare.com.* Retrieved June 10, 2015, from http://www.modernhealthcare.com/article/20140308/MAGAZINE/303089979

LaGanga, L. R., & Lawrence, S. R. (July, 2007). An Appointment Overbooking Model to Improve Client Access and Provider Productivity. *Poms.org, 17*. Retrieved June 9, 2015, from http://www.poms.org/conferences/cso2007/talks/06.pdf.

Liu, N., Ziya, S., & Kulkarni, V. G. Dynamic Scheduling of Outpatient Appointments under Patient No-shows and Cancellations. *Columbia.edu.* Retrieved June 10, 2015, from http://www.columbia.edu/~nl2320/doc/Dynamic-scheduling-MSOM-10.pdf

Luo, J., Kulkarni, V. G., & Ziya, S. Appointment Scheduling Under Patient No-Shows and Service Interruptions. *Manufacturing & Service Operations Management, manuscript MSOM-11-063.R2.* Retrieved June 10, 2015, from http://www.unc.edu/~ziya/appointment%20scheduling%20with%20interruptions-unblinded.pdf

Madsen, L.B. (2012). Healthcare Business Intelligence: A Guide to Empowering Successful Data Reporting and Analytics. *John Wiley & Sons, Inc*. Retrieved May 31, 2015.

Making Appt v2_7-23-2014 1.51.07pm8 [webinar]. *Veterans Health Administration Central Office.* Retrieved June 25, 2015, from https://vaww.vha.vaco.portal.va.gov/sites/DUSHOM/10NA/ACAO/Access%20%20Scheduling%20Core%20Concepts/Forms/AllItems.aspx

Management Tools for Internists, Designing the Patient Schedule (2010, January). *American College of Physicians, Center for Practice, Improvement & Innovation.* Retrieved June 9, 2015, from https://www.acponline.org/running_practice/patient_care/pat_sched.pdf

Managing Veterans Access via Telephone (MVAT) Project background slides (2014, November 12) [powerpoint]. *Department of Veterans Affairs, VHA Telephone Access and Contact Management Office.*

McCarthy, D., Mueller, K., & Wrenn, J. (2009, August). Henry Ford Health System: A Framework for System Integration, Coordination, Collaboration, and Innovation. *The Commonwealth*

Fund, Case Study, Organized Health Care Delivery System, 1308 Vol. 29. Retrieved June 9, 2015, from http://www.commonwealthfund.org/~/media/files/publications/case-study/2009/aug/1308_mccarthy_henry_ford_case_study.pdf

McInnes, D. K., Petrakis, B. A., Gifford, A. L., Rao, S. R., Houston, T. K., Asch, S. M., & O'Toole, T. P. (2014, September). Retaining Homeless Veterans in Outpatient Care: A Pilot Study of Mobile Phone Text Message Appointment Reminders. *National Center for Biotechnology Information. Am J Public Health*, *104 Suppl 4, S588-94.* doi: 10.2105/AJPH.2014.302061.

Measure and Understand Supply and Demand. *Institute for Healthcare Improvement.* Retrieved June 11, 2015, fromhttp://www.ihi.org/resources/Pages/Changes/MeasureandUnderstandSupplyandDemand.aspx

Medical Appointment Scheduling Solution (MASS) Business Blueprint (2014, November). *Veteran Health Administration, Version 2.0.* Retrieved June 9, 2015, from https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCQQFjAA&url=https%3A%2F%2Fwww.voa.va.gov%2FDocumentView.aspx%3FDocumentID%3D3860&ei=Oah2VaGaAtD98AXQq4GoCQ&usg=AFQjCNEqcCgvgFLUqAls7j1Q2Ufg9EKaFA&bvm=bv.95039771,d.dGc

Medical Appointment Scheduling Solution (MASS) RFP Questions and Answers. *D--Medical Appointment Scheduling System (MASS).* Retrieved June 9, 2015, from https://www.fbo.gov/index?s=opportunity&mode=form&id=b51e1756a5336a86941557fae2e68ea6&tab=core&_cview=1

Medicare FFS Physician Feedback Program/Value-Based Payment Modifier (2015, April 06). *Centers for Medicare & Medicaid Services.* Retrieved June 11, 2015, from http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/index.html?redirect=/PhysicianFeedbackProgram

Moore, C. G., Wilson-Witherspoon, P., & Probst, J. C. (2001, July - August). Time and Money: Effects of No-shows at a Family Practice Residency Clinic. *Family Medicine, 33(7):522-7.* Retrieved June 9, 2015, from http://www.ncbi.nlm.nih.gov/pubmed/11456244

Montgomery, J. C. (2009, February 2). Mammography, Cardiology, and Colonoscopy Management, VA Medical Center Muskogee, Oklahoma. *Department of Veterans Affairs, Office of Inspector General, Report No. 08-01866-62.* Retrieved June 10, 2015, http://www.va.gov/oig/54/reports/VAOIG-08-01866-62.pdf

More National Action Needed to Reduce Waiting Times, but Some Clinics Have Made Progress (2001, August). *United States General Accounting Office Report to the Committee on Veterans ' Affairs, House of Representatives, GAO-01-953.* Retrieved June 9, 2015, from http://www.gao.gov/new.items/d01953.pdf

Morgenstern, S. (2011, August 31). ZocDoc Makes Scheduling Doctor’s Appointments Easy. *Zocdoc.com.* Retrieved June 9, 2015, from https://www.zocdoc.com/images/press/news/AARP-8_31_2011.pdf

Murray, M., & Berwick, D. M. (2003, February 26). Advanced Access – Reducing Waiting and Delays in Primary Care. *American Medical Association, 298(8).* Retrieved June 9, 2015, from http://www.sutterhealth.org/SMNtips/JAMAMurrayBerwickFeb2003jip20008.pdf

Murray, M., & Tantau, C. (2000, September). Same-Day Appointments: Exploding the Access Paradigm. *American Academy of Family Physicians. Family Practice Management, 7(8):45-50.* Retrieved June 10, 2015, from http://www.aafp.org/fpm/2000/0900/p45.html

MyVA Meeting Minutes. (2015, April). VHA Call Center. Provided by U.S. Department of Veterans Affairs 2015.

Nguyen, D. L., DeJesus, R. S., & Wieland, M. L. (2011, September). Missed Appointments in Resident Continuity Clinic: Patient Characteristics and Health Care Outcomes. *National Center for Biotechnology Information. J Grad Med Educ., 3(3), 350-5.* doi: 10.4300/JGME-D-10-00199.1.

Nolan, M., & Caldock, K. (1996, September). Assessment: Identifying the barriers to good practice. *Health & Social Care in the Community, 4, 77–85.* doi: 10.1111/j.1365-2524.1996.tb00050.x.

Oakley, R., LeGarde, C., & Patel, M. (2013, October). Group enhances access, continuity of care and shared responsibility. *MGMA Connexion*.

Oh, H. J., Muriel, A., Balasubramanian, H., Atkinson, K., & Ptaszkiewicz, T. (2013, October) Guidelines for Scheduling in Primary Care under Different Patient Types and Stochastic Nurse and Provider Service times. *IIE Transactions on Healthcare Systems Engineering (2013) 3, 263–279*. doi:10.1080/19488300.2013.858379.

O'Kane, K.C. (2014, March 1). A Quick Overview of the Basics of the Mumps Language. Retrieved June 10, 2015 from http://www.cs.uni.edu/~okane/source/MUMPS-MDH/MumpsTutorial.pdf

Open Access Scheduling for Routine and Urgent Appointments. *Agency for Healthcare Research and Quality.* Retrieved June 11, 2015 from, https://cahps.ahrq.gov/quality-improvement/improvement-guide/browse-interventions/Access/Open-Access.html

Opportunities to Improve the Scheduling of Medical Exams for America's Veterans: A Report Based On a Review of VA's Scheduling Practices by the Northern Virginia Technology Council (NVTC) (October 29, 2014). *Northern Virginia Technology Council, Department of Veterans Affairs, Version 1.1.* Retrieved June 9, 2015, from http://www.va.gov/opa/choiceact/documents/NVTCFinalReporttoVA-revised3.pdf

Patel, D., & Brombach, M. Patient Engagement: Digital Self-scheduling Set to Explode in Healthcare over the next Five Years. *Accenture.com (2014).* Retrieved June 10, 2015, from http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-Patient-Engagement-Digital-Self-Scheduling-Set-Explode-Healthcare-Over-Next-Five-Years.pdf

Patient Care Issues and Contract Mental Health Program Mismanagement Atlanta VA Medical Center Decatur, Georgia (2013, April 17). *Department of Veterans Affairs, Office of Inspector*

General, Report No. 12-02955-178. Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/VAOIG-12-02955-178.pdf

Paulding, D. (2013, March 14). Should You Consolidate Your Call Centre Architecture? *MyCustomer*. Retrieved June 10, 2015, from http://www.mycustomer.com/topic/marketing/benefits-consolidating-and-centralising-communications/162044

Payment Reform Barrier #3: Physician Compensation Based on Volume, Not Value (2013, February 28). *Center for Healthcare Quality and Payment Reform.* Retrieved June 10, 2015, from http://chqpr.org/blog/index.php/2013/02/payment-reform-barrier-3-physician-compensation-based-on-volume-not-value/

Performance Management Standard (2012, November 30). *American National Standards Institute, Inc, Shrm.org.* Retrieved June 10, 2015, from http://www.shrm.org/HRStandards/Documents/Performance%20Management%20ANS%20%282012%29.pdf

Performance Work Statement (2014, November 12). *Department of Veterans Affairs, Office of Information and Technology*. Retrieved June 10, 2015.

Petrie, N. Future Trends in Leadership Development. *Center for Creative Leadership, 2014*. Retrieved June 10, 2015, from http://www.ccl.org/Leadership/pdf/research/futureTrends.pdf

Pizer, S. D., & Prentice., J. C. (2011, November). What are the consequences of waiting for health care in the Veteran population? *Journal of General Internal Medicine 26(Supplement 2):676-682.* doi: 10.1007/s11606-011-1819-1.

Postuma, R., & Loewen, L. (2005, May). Telepediatric Surgery: Capturing Clinical Outcomes. *National Center for Biotechnology Information. J Pediatr Surg., 40(5), 813-8.* Retrieved June 10, 2015, from http://www.ncbi.nlm.nih.gov/pubmed/15937821

Prentice, J. C., Davies, M. L, & Pizer, S. D. (2015, April 2). Appointment Age and Kept Appointment Rate for Primary Care Appointments. *VHA internal email communication.*

Primary Care Clinic Profile Standardization Guide (2014). *The Office of Primary Care Operations in collaboration with the Access and Clinical Administration Program Office*. Retrieved June 10, 2015.

Private sector health system interviews (2015). In-person interviews. (Jan. – Jun. 2015). Interviews include: Cleveland Clinic, Cleveland Clinic Interactive Voice Response, Connected Health, Geisinger, Kaiser Permanente, New York Harbor Healthcare System.

Productivity and Staffing Guidance for Specialty Provider Group Practice. (2015). VHA Handbook 1065.01 Transmittal Sheet. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=3102

Project Management Accountability System (PMAS) Guide 5.0 (2014, June 11). *U.S. Department of Veterans Affairs, Office of Information and Technology.* Retrieved June 9, 2015, from https://www.voa.va.gov/pmas/pdf/PMAS-Guide-5.0.pdf

Quigley, D. D., Wiseman, S. H., & Farley, D. O. (2011, August). Improving Customer Service and Access in a Surgical Practice, A Case Study of a Successful Quality Improvement Intervention. *Rand.org, WR-848-AHRQ,* Retrieved June 9, 2015, from http://www.rand.org/content/dam/rand/pubs/working_papers/2011/RAND_WR848.pdf

Rae, W. L. Evaluation of Training and Learning. *Businessballs.com. 2004.* Retrieved June 10, 2015, from http://www.businessballs.com/trainingevaluationtools.pdf

Reduce Scheduling Complexity, Improving Primary Care Access. *Institute for Healthcare Improvement.* Retrieved June 10, 2015 from http://www.ihi.org/resources/Pages/Changes/ReduceSchedulingComplexity.aspx

Reinkemeyer, L. M. (2007, October 3). Hearing on Audit of the Veterans Health Administration's Outpatient Waiting Times. *Office of Inspector General, Department of Veterans Affairs, Before Special Committee on Aging, U.S. Senate.* Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/statements/VAOIG-statement-20071003-reinkemeyer.pdf

Reliability of Reported Outpatient Medical Appointment Wait Times and Scheduling Oversight Need Improvement (2012, December). *United States Government Accountability Office, Report to Congressional Requesters, GAO-13-130.* Retrieved June 9, 2015, from http://www.gao.gov/assets/660/651076.pdf

Report of the Audit of the Department of Veterans Affairs Consolidated Financial Statements for fiscal years 2003 and 2002 (2013, November 14). *Department of Veterans Affairs Office of Inspector General, Report No. 03–01237-21.* Retrieved June 9, 2015, from http://www.va.gov/oig/52/reports/2004/VAOIG-03-01237-21.pdf

Results of Access Audit Conducted May 12, 2014, through June 3, 2014. Access Audit System-Wide Review of Access. *Department of Veterans Affairs.* Retrieved June 9, 2015, from http://www.va.gov/health/docs/vaaccessauditfindingsreport.pdf

Review of Patient Wait Times, Scheduling Practices, and Alleged Patient Deaths at the Phoenix Health Care System (2014, May 28). *Veterans Health Administration - Interim Report - 14-02603-178.* Retrieved June 9, 2015, from http://www.va.gov/oig/pubs/VAOIG-14-02603-178.pdf

Review of Patient Wait Times, Scheduling Practices, and Alleged Patient Deaths at the Phoenix VA Health Care System. Appendix E Memorandum from the Deputy Under Secretary for Health for Operations and Management, Titled: Inappropriate Scheduling Practices, Inappropriate Scheduling Practices. (2010, April 26). *Department of Veterans Affairs Office of Inspector General, Memorandum.* Retrieved June 10, 2015, from http://media.cmgdigital.com/shared/news/documents/2014/05/29/2010_VA_memo.pdf

Review of the Award and Administration of Task Orders Issued by the Department of Veterans Affairs for the Replacement Scheduling Application Development Program (RSA) (2009, August 26). *Department of Veterans Affairs Office of Inspector General, Report No. 09-01926-207.* Retrieved June 9, 2015, from http://www.va.gov/oig/52/reports/2009/VAOIG-09-01926-207.pdf

Review of Veterans' Access to Mental Health Care (2012, April 23). *Veterans Health Administration, Office of Inspector General, 12-00900-168.* Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/VAOIG-12-00900-168.pdf

Ricker, D. (2010, June 28). Best Practice Suggestions for Customer Communications Within Your IVR. *Blog.tfcci.com.* Retrieved June 10, 2015, from http://blog.tfcci.com/bid/34084/7-Tips-for-Maximizing-Customer-Communications-Within-Your-IVR

Rodak, S. (2013, August 08). Cleveland Clinic's Call Center Improves Care Access. *Beckershospitalreview.com.* Retrieved June 9, 2015, from http://www.beckershospitalreview.com/capacity-management/cleveland-clinic-s-call-center-improves-care-access.html

Ross, R. G. (1987, April). Entity Modeling: Techniques and Application.

RVU Based Physician Compensation and Productivity, Ten Recommendations for Determining Physician Compensation/Productivity Through Relative Value Units. *Merritthawkins.com.* Retrieved June 9, 2015, from http://www.merritthawkins.com/pdf/mharvuword.pdf

Sawyer, S. M., Zalan, A., & Bond, L. M. (2002, February). Telephone Reminders Improve Clinic Attendance: A Randomized, Controlled Trial. *Journal of Pediatrics and Child Health, 38 (1): 79-83.* Retrieved June 9, 2015, from http://www.ncbi.nlm.nih.gov/pubmed/11869406

Scheduling Clinic Standards (SCS) Work Group Report (2015, January 15). *Department of Veterans Affairs, Scheduling Clinic Standards Work Group.*

Schuller, K. A., Lin, S. H., Gamm, L. D., & Edwardson, N. (2015, May - June). Discharge Phone Calls: A Technique to Improve Patient Care during the Transition from Hospital to Home. *National Center for Biotechnology Information. J Healthc Qual, 37(3), 163-72.* doi: 10.1111/jhq.12051.

Select Patient Care Delays and Reusable Medical Equipment Review Central Texas Veterans Health Care System Temple, Texas (2012, January 6). *Department of Veterans Affairs Office of Inspector General, Report No. 11-03941-61.* Retrieved June 9, 2015, from http://www.va.gov/oig/pubs/VAOIG-11-03941-61.pdf

Shepherd, M. (2006, May 6). Hearing on Veterans' Suicides. *Office of Inspector General, Department of Veterans Affairs, Before Committee on Veterans' Affairs U.S. House of Representatives.* Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/statements/VAOIG-statement-20080506-shepherd.pdf

Shepherd, M. L. (2013, August 7). Ensuring Veterans Receive the Care They Deserve: Addressing VA Mental Health Program Management. *Office of Inspector General Department of Veterans Affairs, Before Committee on Veterans Affairs, U.S. Senate.* Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/statements/VAOIG-statement-20130807-shepherd.pdf

Siddiqui, Z., & Rashid, R. (2013, April 15). Cancellations and Patient Access to Physicians: ZocDoc and the Evolution of E-medicine. *National Center for Biotechnology Information. Dermatol*

Online J., 19(4), 14. Retrieved June 10, 2015, from http://www.ncbi.nlm.nih.gov/pubmed/24021373

Silver, J. (2011). How Will You Get Paid? *Practicelink.com.* Retrieved June 10, 2015, from http://www.practicelink.com/magazine/featured/how-will-you-get-paid/

Step 5: Achieve Meaningful Use Stage 1, Patient Reminders. *HealthIT.gov.* Retrieved June 10, 2015, from http://www.healthit.gov/providers-professionals/achieve-meaningful-use/menu-measures/patient-reminders

Stewart, E. E., & Johnson, B. C. (2007, June). Huddles: Improve Office Efficiency in Mere Minutes. *American Academy of Family Physicians, Family Practice Management.* Retrieved June 9, 2015, from http://www.aafp.org/fpm/2007/0600/p27.html

Strategic Analytics for Improvement and Learning (SAIL). Retrieved June 10, 2015, from http://www.hospitalcompare.va.gov/docs/Facility-Scorecard_FY14Q3.pdf

Talent Management Office data (2015). U.S. Department of Veterans Affairs. Provided by VHA Healthcare Talent Management Office 2015.

Taufen, A. (2013, January 7). Plug the No-show Drain: Use Codes to Track Missed Appointments. *MGMA In Practice Blog*. Retrieved June 10, 2015, from http://www.mgma.com/blog/plug-the-no-show-drain-use-codes-to-track-missed-appointments

The Impact of Employee Engagement on Performance. *Harvard Business Review 2013.* Retrieved June 10, 2015, from https://hbr.org/resources/pdfs/comm/achievers/hbr_achievers_report_sep13.pdf

The Journey to Just Say Yes (2013). *Patient Access, FTI Consulting.* Retrieved June 9, 2015, from http://www.fticonsulting.com/global2/media/collateral/united-states/fti-whitepaper-just-say-yes.pdf

The Metropolitan Housing Partnership, Case Study (2011, July). *Acas.org.uk.* Retrieved June 9, 2015, from http://www.acas.org.uk/media/pdf/d/1/casestudymet-accessible-version-July-2011.pdf

Third Next Available Appointment, Improving Primary Care Access. *Institute for Healthcare Improvement.* Retrieved June 9, 2015, from http://www.ihi.org/resources/Pages/Measures/ThirdNextAvailableAppointment.aspx

Tips for Creating an Effective Handout. *Aaoms.org.* Retrieved June 10, 2015, from http://www.aaoms.org/images/uploads/pdfs/handout_tips.pdf

Tompson, H. B., Bear, D. J., Dennis, D. J., Vickers, M., London, J., & Morrison, C. L. Coaching: A Global Study of Successful Practices, Current Trends and Future Possibilities (2008-2018). *American Management Association, Opm.gov.* Retrieved June 10, 2015, from http://www.opm.gov/WIKI/uploads/docs/Wiki/OPM/training/i4cp-coaching.pdf

Transforming Health Care Scheduling and Access: Getting to Now (June 29, 2015). *Institute of Medicine of the National Academies*.

Trebble, T. M., Heyworth, N., Clarke, N., Powell, T., & Hockey, P. M. (2014, November 21). Managing Hospital Doctors and Their Practice: What Can We Learn about Human Resource Management from Non-healthcare Organizations? *National Center for Biotechnology Information. BMC Health Serv Res., 14, 566.* doi: 10.1186/s12913-014-0566-5.

Trends in Online Appointment Scheduling. (2011, May 1). *aapcps.com.* Retrieved June 9, 2015, from http://www.aapcps.com/news-articles/Trends%20In%20Online%20Appointment%20Scheduling.aspx

Use Regular Huddles and Staff Meetings to Plan Production and to Optimize Team Communication. *Institute for Healthcare Improvement.* Retrieved June 11, 2015, from http://www.ihi.org/resources/Pages/Changes/UseRegularHuddlesandStaffMeetingstoPlanProductionandtoOptimizeTeamCommunication.aspx

Using Centralized Scheduling to Improve Performance. *Parallon Business Solutions*. Retrieved June 9, 2015, from http://parallon.com/sites/default/files/Parallon%20Case%20StudY-BPG-CentralizedScheduling%20WEB_0.pdf

Using Health Text Messages to Improve Consumer Health Knowledge, Behaviors, and Outcomes, An Environmental Scan (2014, May). *U.S. Department of Health and Human Services.* Retrieved June 9, 2015, from http://www.hrsa.gov/healthit/txt4tots/environmentalscan.pdf

Using IT to Improve Access to Health Care and Benefits (2014, January 12). *U.S. Department of Veterans Affairs, FactSheet.* Retrieved June 9, 2015, from http://www.oit.va.gov/docs/oit_fact_sheet/VA_IT_Accomplishments_Improving_Access_Factsheet_12012014.pdf

VA Mental Health Care: Evaluating Access and Assessing Care (2012, April 25). *Office of Inspector General U.S. Department of Veterans Affairs, Before the Committee on Veterans' Affairs, United States Senate.* Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/statements/VAOIG-statement-20120425.pdf

VA Mental Health Care Staffing: Ensuring Quality and Quantity (2012, May 8). *Office of Inspector General, U.S. Department of Veterans Affairs, Before the Committee on Veterans' Affairs, United States House of Representatives.* Retrieved June 10, 2015, from http://www.va.gov/oig/pubs/statements/VAOIG-statement-20120508.pdf

VA Needs Better Data on Extent and Causes of Waiting Times (2000, May). *U.S. Government Accountability Office, Report to the Ranking Democratic Member, Committee on Veterans' Affairs, House of Representatives, GAO/HEHS-00-90*. Retrieved June 10, 2015, from http://www.gao.gov/assets/240/230347.pdf

VA Needs to Improve Accuracy of Reported Wait Times for Blind Rehabilitation Services. *U.S. Government Accountability Office, Report to Congressional Requesters, GAO-04-949*. Retrieved June 10, 2015, from http://www.gao.gov/assets/250/243419.pdf

Veterans Access, Choice, and Accountability Act of 2014 (2014, January 03). *One Hundred Thirteenth Congress of the United States of America at the second session, Begun and held at* *the City of Washington, H. R. 3230.* Retrieved June 11, 2015, from http://www.gpo.gov/fdsys/pkg/BILLS-113hr3230enr/pdf/BILLS-113hr3230enr.pdf

Veterans Health Administration posted regular data updates showing progress on its efforts to accelerate access to quality health care for Veterans who have been waiting for appointments. *2014 Patient Access Data Archive. U.S. Department of Veterans Affairs.* Retrieved June 23, 2015, from http://www.va.gov/HEALTH/2014_Patient_Access_Data_Archive.asp

VHA Consult SOP – draft (2015, March 30). *Department of Veterans Affairs, Veterans Health Administration, Access and Clinic Administration Program.*

VHA DIRECTIVE 1731. Decision Support System Outpatient Identifiers (2013, May 29). *Veterans Health Administration.* Retrieved June 11, 2015, from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=1788

VHA DIRECTIVE 2008-056. VHA Consult Policy (2008, September 16). *Department of Veterans Affairs.* Retrieved June 9, 2015, from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=1765

VHA DIRECTIVE 2010-027. Outpatient scheduling processes and procedures (2010, June 9*).* *Veterans Health Administration*. Retrieved June 11, 2015, from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2252

VHA HANDBOOK 1101.10. Patient Aligned Care Team (PACT) Handbook (2014, February 5). *Veterans Health Administration.* Retrieved June 11, 2015, from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2977

VHA Missed Opportunity Call List Memorandum (2014, April 15). Memorandum from Acting Deputy Under Secretary for Health for Operations and Management (10N) to Network Directors (10N1-23). *Department of Veterans Affairs, Veterans Health Administration.*

VHA Telephone Access White Paper (2014, December 12). *Department of Veterans Affairs, VHA Office of Primary Care Service, Primary Care Operations, and Access and Clinic Administration Program.*

VISN Consult Training Schedule (2015, March 24). *Department of Veterans Affairs, Veterans Health Administration, Access and Clinic Administration Program.*

VistA 4 Product Roadmap (2014, March 24). *Department of Veterans Affairs.* Retrieved June 9, 2015, from http://www.osehra.org/sites/default/files/vista_4_product_roadmap_3-24-14.pdf

Vo, A., Brooks, G. B., Farr, R., & Raimer, B. Benefits of Telemedicine in Remote Communities & Use of Mobile and Wireless Platforms in Healthcare. *Telehealth.utmb.edu.* Retrieved June 10, 2015, from http://telehealth.utmb.edu/presentations/Benefits_Of_Telemedicine.pdf

VSSC data (2014). U.S. Department of Veterans Affairs. Provided by The MITRE Corporation 2015.

Wang, D., Crilly, J., Jaeger, L., & Palmer, G. (2007, October 11). Assessing Patient Preferences for Delivery of Reminders on Scheduled Visits in a Psychiatry Ambulatory Service. *National Center for Biotechnology Information. AMIA Annu Symp Proc*, 776-80. Oct. Retrieved June 10, 2015, from http://www.ncbi.nlm.nih.gov/pubmed/18693942

Welch, J. D. (1964, September). Appointment Systems in Hospital Outpatient Departments. *Operational Research Society.* doi: 10.2307/3007210

Westerman, A. S. (2014, May 21). UVA. Center Considers Use of Telemedicine to Assess Sports Concussions. *Cnsmaryland.org.* Retrieved June 10, 2015, from http://cnsmaryland.org/2014/05/21/uva-center-considers-use-of-telemedicine-to-assess-sports-concussions/

Whitmore, J. (2002). Coaching for Performance*. Based on IBM and U.K. Post Office research*

Why are hierarchical databases like MUMPS still popular in Healthcare? (2010, October 12). *Healthcare & Security Solutions. Designing secure information systems and solutions for the digital transformation of healthcare – by Joerg Schwarz.* Retrieved June 9, 2015, from https://healthcaresecurity.wordpress.com/2010/10/12/why-are-hierarchical-databases-like-mumps-still-popular-in-healthcare/

Wojtys, E. M., Schley, L., Overgaard, K. A., & Agbabian, J. Applying Lean Techniques to Improve the Patient Scheduling Process. *Journal for Healthcare Quality, 31(3), 10-16, May-June 2009, National Association for Healthcare Quality.* Retrieved June 10, 2015, from http://deepblue.lib.umich.edu/bitstream/handle/2027.42/73944/j.1945-1474.2009.00025.x.pdf?sequence=1

Wood, S. Fully On-the-job Training, Experiences and Steps Ahead. *Meester-gezel.nl.* Retrieved June 10, 2015, from http://www.meester-gezel.nl/doc/OJT_training_on_the_job.pdf

Woodcock, E.W. (2007, May 1). Mastering Patient Flow: Using Lean Thinking to Improve Your Practice Operations. *MGMA*.

Yoon, J., Scott, J. Y., Phibbs, C. S., & Wagner, T. H. Recent Trends in Veterans Affairs Chronic Condition Spending. *Population Health Management, 14(X), 2011*. Retrieved June 10, 2015, from http://www.herc.research.va.gov/files/JOUR_22044350.pdf

Zangalli, C. S., Murchison, A. P., Hale, N., Hark, L. A., Pizzi, L. T., Dai, Y., Leiby, B. E., & Haller, J. A. (2014, September30). An Education- and Telephone-Based Intervention to Improve Follow-up to Vision Care in Patients With Diabetes: A Prospective, Single-Blinded, Randomized Trial. *National Center for Biotechnology Information. Am J Med Qual.* Retrieved June 9, 2015. doi: pii: 1062860614552670.

Zupko, K., & Nelson, A. (2012, April 11). How to Reduce No-Show Patients at Your Medical Practice. *PhysiciansPractice.com.* Retrieved June 9, 2015, from http://www.physicianspractice.com/pearls/how-reduce-no-show-patients-your-medical-practice

This page intentionally left blank.

Appendix I List of Acronyms

ACAP	Access and Clinic Administration Program
ACD	Automatic Call Distributor
AMGMA	Academic Medical Group Management Association
AOA	Analysis of Alternatives
AOs	Administrative Officers
CAMH	CMS Alliance to Modernize Healthcare
CBI	Compliance and Business Integrity
CBO	Chief Business Office
CBOC	Community-Based Outpatient Clinic
CDW	Corporate Data Warehouse
cFTE	Clinical Full-Time Equivalent
CIO	Chief Information Officer
CMS	Centers for Medicare & Medicaid Services
COTS	Commercial-Off-The-Shelf
CPM	Clinic Practice Management
CPRS	Computerized Patient Record System
CRM	Customer Relationship Management
CUSS	Clinic Utilization Statistical Summary
EES	Employee Education System
EHCPM	Enrollee Health Care Projection Model
EMR	Electronic Medical Record
EWL	Electronic Wait List
FCR	First Call Resolution
FFRDC	Federally Funded Research and Development Center
FOC	Final operating capability
FTE	Full-Time Employee
GAO	Government Accounting Office
GPM	Group Practice Manager
GUI	Graphical User Interface
HAS	Health Administration Service
HRC	Health Resource Center

ICB	Insurance Capture Buffer
IHI	Institute for Healthcare Improvement
IOC	Initial Operational Capability
IOM	Institute of Medicine
IVAT	Improving Veterans Access via the Telephone
IVR	Interactive Voice Response
MAS	Medical Administration Service
MASS	Medical Appointment Scheduling System
MGMA	Medical Group Management Association
MSA	Medical Support Assistant
MUMPS	Massachusetts General Hospital Utility Multi-Programming System
MVAT	Managing Veterans Access via the Telephone
NAHAM	National Association of Healthcare Access Management
OI&T	Office of Information & Technology
OIG	Office of the Inspector General
OPES	Office of Productivity, Efficiency, and Staffing
PACT	Patient-Aligned Care Teams
PCP	Primary Care Provider
PMAS	Program Management Accountability System
RFQ	request for quotation
RMS	Resource Management System
RSA	Replacement Scheduling Application
RVUs	Relative Value Units
SC	Service Connected
SCS	Scheduling Clinic Standards
SHEP	Survey of Healthcare Experience of Patients
SMS	Short Message Service
SOPs	Standard Operating Procedures
SPARQ	Specialty Productivity Access Report and Quadrant
TACM	Telephone Access and Contact Management
TMS	Talent Management System
TRM	Technical Reference Model
VA	Veterans Affairs

VACO	Veterans Affairs Central Office
VAMCs	VA Medical Centers
VAR	Veteran Appointment Request
VCL	Veterans Choice List
VERA	Veteran Equitable Resource Allocation
VHA	Veterans Health Administration
VHACO	Veterans Health Administration Central Office
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture
VSE	VistA Scheduling Enhancements
VSSC	Veterans Support Service Center
wRVU	Work Relative Value Unit